APPENDICES
APPENDIX – A

LIST OF RULES USING MAMDANI INFERENCE METHOD

1. Effect of Noise Pollution on Human Performance

R-1: IF Noise Level is “Low” AND Type of Task is “Simple” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-2: IF Noise Level is “Low” AND Type of Task is “Simple” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Negligible”.

R-3: IF Noise Level is “Low” AND Type of Task is “Simple” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Negligible”.

R-4: IF Noise Level is “Low” AND Type of Task is “Simple” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Negligible”.

R-5: IF Noise Level is “Low” AND Type of Task is “Moderate” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-6: IF Noise Level is “Low” AND Type of Task is “Moderate” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Negligible”.

R-7: IF Noise Level is “Low” AND Type of Task is “Moderate” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Negligible”.

R-8: IF Noise Level is “Low” AND Type of Task is “Moderate” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Negligible”.

R-9: IF Noise Level is “Low” AND Type of Task is “Complex” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-10: IF Noise Level is “Low” AND Type of Task is “Complex” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Slight”.

R-11: IF Noise Level is “Low” AND Type of Task is “Complex” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Slight”.

R-12: IF Noise Level is “Low” AND Type of Task is “Complex” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Moderate”.

R-13: IF Noise Level is “Medium” AND Type of Task is “Simple” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-14: IF Noise Level is “Medium” AND Type of Task is “Simple” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Negligible”.

R-15: IF Noise Level is “Medium” AND Type of Task is “Simple” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Negligible”.

R-16: IF Noise Level is “Medium” AND Type of Task is “Simple” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Negligible”.

R-17: IF Noise Level is “Medium” AND Type of Task is “Moderate” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.
R-18: IF Noise Level is "Medium" AND Type of Task is "Moderate" AND Exposure Time is "Short" THEN Degradation in Human Performance is "Negligible".

R-19: IF Noise Level is "Medium" AND Type of Task is "Moderate" AND Exposure Time is "Medium" THEN Degradation in Human Performance is "Negligible".

R-20: IF Noise Level is "Medium" AND Type of Task is "Moderate" AND Exposure Time is "Long" THEN Degradation in Human Performance is "Slight".

R-21: IF Noise Level is "Medium" AND Type of Task is "Complex" AND Exposure Time is "Very Short" THEN Degradation in Human Performance is "Slight".

R-22: IF Noise Level is "Medium" AND Type of Task is "Complex" AND Exposure Time is "Short" THEN Degradation in Human Performance is "Slight".

R-23: IF Noise Level is "Medium" AND Type of Task is "Complex" AND Exposure Time is "Medium" THEN Degradation in Human Performance is "Moderate".

R-24: IF Noise Level is "Medium" AND Type of Task is "Complex" AND Exposure Time is "Long" THEN Degradation in Human Performance is "High".

R-25: IF Noise Level is "High" AND Type of Task is "Simple" AND Exposure Time is "Very Short" THEN Degradation in Human Performance is "Negligible".

R-26: IF Noise Level is "High" AND Type of Task is "Simple" AND Exposure Time is "Short" THEN Degradation in Human Performance is "Negligible".

R-27: IF Noise Level is "High" AND Type of Task is "Simple" AND Exposure Time is "Medium" THEN Degradation in Human Performance is "Negligible".

R-28: IF Noise Level is "High" AND Type of Task is "Simple" AND Exposure Time is "Long" THEN Degradation in Human Performance is "Slight".

R-29: IF Noise Level is "High" AND Type of Task is "Moderate" AND Exposure Time is "Very Short" THEN Degradation in Human Performance is "Negligible".

R-30: IF Noise Level is "High" AND Type of Task is "Moderate" AND Exposure Time is "Short" THEN Degradation in Human Performance is "Negligible".

R-31: IF Noise Level is "High" AND Type of Task is "Moderate" AND Exposure Time is "Medium" THEN Degradation in Human Performance is "Slight".

R-32: IF Noise Level is "High" AND Type of Task is "Moderate" AND Exposure Time is "Long" THEN Degradation in Human Performance is "Moderate".

R-33: IF Noise Level is "High" AND Type of Task is "Complex" AND Exposure Time is "Very Short" THEN Degradation in Human Performance is "Moderate".

R-34: IF Noise Level is "High" AND Type of Task is "Complex" AND Exposure Time is "Short" THEN Degradation in Human Performance is "Moderate".

R-35: IF Noise Level is "High" AND Type of Task is "Complex" AND Exposure Time is "Medium" THEN Degradation in Human Performance is "High".

R-36: IF Noise Level is "High" AND Type of Task is "Complex" AND Exposure Time is "Long" THEN Degradation in Human Performance is "Very High".

A-2
R-37: IF Noise Level is “Very High” AND Type of Task is “Simple” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-38: IF Noise Level is “Very High” AND Type of Task is “Simple” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Negligible”.

R-39: IF Noise Level is “Very High” AND Type of Task is “Simple” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Slight”.

R-40: IF Noise Level is “Very High” AND Type of Task is “Simple” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Moderate”.

R-41: IF Noise Level is “Very High” AND Type of Task is “Moderate” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Negligible”.

R-42: IF Noise Level is “Very High” AND Type of Task is “Moderate” AND Exposure Time is “Short” THEN Degradation in Human Performance is “Slight”.

R-43: IF Noise Level is “Very High” AND Type of Task is “Moderate” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Moderate”.

R-44: IF Noise Level is “Very High” AND Type of Task is “Moderate” AND Exposure Time is “Long” THEN Degradation in Human Performance is “High”.

R-45: IF Noise Level is “Very High” AND Type of Task is “Complex” AND Exposure Time is “Very Short” THEN Degradation in Human Performance is “Moderate”.

R-46: IF Noise Level is “Very High” AND Type of Task is “Complex” AND Exposure Time is “Short” THEN Degradation in Human Performance is “High”.

R-47: IF Noise Level is “Very High” AND Type of Task is “Complex” AND Exposure Time is “Medium” THEN Degradation in Human Performance is “Very High”.

R-48: IF Noise Level is “Very High” AND Type of Task is “Complex” AND Exposure Time is “Long” THEN Degradation in Human Performance is “Very High”.

2. Effect of Noise Pollution on Noise-Induced Hearing Loss

R-1: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

R-2: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-3: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Adult” THEN Hearing Loss is “Not Affected”.

R-4: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Old” THEN Hearing Loss is “Not Affected”.

R-5: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

A-3
R-6: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-7: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Adult” THEN Hearing Loss is “Not Affected”.

R-8: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Old” THEN Hearing Loss is “Not Affected”.

R-9: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

R-10: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-11: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Adult” THEN Hearing Loss is “Not Affected”.

R-12: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Old” THEN Hearing Loss is “Momentarily Affected”.

R-13: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

R-14: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-15: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Adult” THEN Hearing Loss is “Momentarily Affected”.

R-16: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Old” THEN Hearing Loss is “Temporarily Affected”.

R-17: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

R-18: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-19: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Adult” THEN Hearing Loss is “Not Affected”.

R-20: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Old” THEN Hearing Loss is “Not Affected”.

R-21: IF Noise Level is “Medium” AND Exposure Time is “Short” AND Person-by-Age is “Very Young” THEN Hearing Loss is “Not Affected”.

R-22: IF Noise Level is “Medium” AND Exposure Time is “Short” AND Person-by-Age is “Young” THEN Hearing Loss is “Not Affected”.

R-23: IF Noise Level is “Medium” AND Exposure Time is “Short” AND Person-by-Age is “Adult” THEN Hearing Loss is “Not Affected”.

R-24: IF Noise Level is “Medium” AND Exposure Time is “Short” AND Person-by-Age is “Old” THEN Hearing Loss is “Momentarily Affected”.

A-4
R-25: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-26: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Young" THEN Hearing Loss is "Not Affected".

R-27: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Adult" THEN Hearing Loss is "Momentarily Affected".

R-28: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Old" THEN Hearing Loss is "Temporarily Affected".

R-29: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-30: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Young" THEN Hearing Loss is "Momentarily Affected".

R-31: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Adult" THEN Hearing Loss is "Temporarily Affected".

R-32: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Old" THEN Hearing Loss is "Permanently Affected".

R-33: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-34: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Young" THEN Hearing Loss is "Not Affected".

R-35: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Adult" THEN Hearing Loss is "Momentarily Affected".

R-36: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Old" THEN Hearing Loss is "Temporarily Affected".

R-37: IF Noise Level is "High" AND Exposure Time is "Short" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-38: IF Noise Level is "High" AND Exposure Time is "Short" AND Person-by-Age is "Young" THEN Hearing Loss is "Not Affected".

R-39: IF Noise Level is "High" AND Exposure Time is "Short" AND Person-by-Age is "Adult" THEN Hearing Loss is "Momentarily Affected".

R-40: IF Noise Level is "High" AND Exposure Time is "Short" AND Person-by-Age is "Old" THEN Hearing Loss is "Temporarily Affected".

R-41: IF Noise Level is "High" AND Exposure Time is "Medium" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-42: IF Noise Level is "High" AND Exposure Time is "Medium" AND Person-by-Age is "Young" THEN Hearing Loss is "Momentarily Affected".

R-43: IF Noise Level is "High" AND Exposure Time is "Medium" AND Person-by-Age is "Adult" THEN Hearing Loss is "Temporarily Affected".
R-44: IF Noise Level is "High" AND Exposure Time is "Medium" AND Person-by-Age is "Old" THEN Hearing Loss is "Permanently Affected".

R-45: IF Noise Level is "High" AND Exposure Time is "Long" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Momentarily Affected".

R-46: IF Noise Level is "High" AND Exposure Time is "Long" AND Person-by-Age is "Young" THEN Hearing Loss is "Temporarily Affected".

R-47: IF Noise Level is "High" AND Exposure Time is "Long" AND Person-by-Age is "Adult" THEN Hearing Loss is "Permanently Affected".

R-48: IF Noise Level is "High" AND Exposure Time is "Long" AND Person-by-Age is "Old" THEN Hearing Loss is "Permanently Affected".

R-49: IF Noise Level is "Very High" AND Exposure Time is "Very Short" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-50: IF Noise Level is "Very High" AND Exposure Time is "Very Short" AND Person-by-Age is "Young" THEN Hearing Loss is "Not Affected".

R-51: IF Noise Level is "Very High" AND Exposure Time is "Very Short" AND Person-by-Age is "Adult" THEN Hearing Loss is "Momentarily Affected".

R-52: IF Noise Level is "Very High" AND Exposure Time is "Very Short" AND Person-by-Age is "Old" THEN Hearing Loss is "Temporarily Affected".

R-53: IF Noise Level is "Very High" AND Exposure Time is "Short" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Not Affected".

R-54: IF Noise Level is "Very High" AND Exposure Time is "Short" AND Person-by-Age is "Young" THEN Hearing Loss is "Momentarily Affected".

R-55: IF Noise Level is "Very High" AND Exposure Time is "Short" AND Person-by-Age is "Adult" THEN Hearing Loss is "Temporarily Affected".

R-56: IF Noise Level is "Very High" AND Exposure Time is "Short" AND Person-by-Age is "Old" THEN Hearing Loss is "Permanently Affected".

R-57: IF Noise Level is "Very High" AND Exposure Time is "Medium" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Momentarily Affected".

R-58: IF Noise Level is "Very High" AND Exposure Time is "Medium" AND Person-by-Age is "Young" THEN Hearing Loss is "Temporarily Affected".

R-59: IF Noise Level is "Very High" AND Exposure Time is "Medium" AND Person-by-Age is "Adult" THEN Hearing Loss is "Permanently Affected".

R-60: IF Noise Level is "Very High" AND Exposure Time is "Medium" AND Person-by-Age is "Old" THEN Hearing Loss is "Permanently Affected".

R-61: IF Noise Level is "Very High" AND Exposure Time is "Long" AND Person-by-Age is "Very Young" THEN Hearing Loss is "Temporarily Affected".

R-62: IF Noise Level is "Very High" AND Exposure Time is "Long" AND Person-by-Age is "Young" THEN Hearing Loss is "Permanently Affected".
R-63: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Adult” THEN Hearing Loss is “Permanently Affected”.

R-64: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Old” THEN Hearing Loss is “Permanently Affected”.

3. Effects of Noise Pollution on Sleep

R-1: IF Noise Level is “Low” AND Duration is “Very Short” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-2: IF Noise Level is “Low” AND Duration is “Very Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-3: IF Noise Level is “Low” AND Duration is “Very Short” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Negligible”.

R-4: IF Noise Level is “Low” AND Duration is “Very Short” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Negligible”.

R-5: IF Noise Level is “Low” AND Duration is “Short” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-6: IF Noise Level is “Low” AND Duration is “Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-7: IF Noise Level is “Low” AND Duration is “Short” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Negligible”.

R-8: IF Noise Level is “Low” AND Duration is “Short” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Negligible”.

R-9: IF Noise Level is “Low” AND Duration is “Medium” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-10: IF Noise Level is “Low” AND Duration is “Medium” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-11: IF Noise Level is “Low” AND Duration is “Medium” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Negligible”.

R-12: IF Noise Level is “Low” AND Duration is “Medium” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Slight”.

R-13: IF Noise Level is “Low” AND Duration is “Long” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-14: IF Noise Level is “Low” AND Duration is “Long” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-15: IF Noise Level is “Low” AND Duration is “Long” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Slight”.

A-7
R-16: IF Noise Level is “Low” AND Duration is “Long” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Moderate”.

R-17: IF Noise Level is “Medium” AND Duration is “Very Short” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-18: IF Noise Level is “Medium” AND Duration is “Very Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-19: IF Noise Level is “Medium” AND Duration is “Very Short” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Negligible”.

R-20: IF Noise Level is “Medium” AND Duration is “Very Short” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Slight”.

R-21: IF Noise Level is “Medium” AND Duration is “Short” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-22: IF Noise Level is “Medium” AND Duration is “Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

R-23: IF Noise Level is “Medium” AND Duration is “Short” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Slight”.

R-24: IF Noise Level is “Medium” AND Duration is “Short” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Moderate”.

R-25: IF Noise Level is “Medium” AND Duration is “Medium” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-26: IF Noise Level is “Medium” AND Duration is “Medium” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Slight”.

R-27: IF Noise Level is “Medium” AND Duration is “Medium” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Moderate”.

R-28: IF Noise Level is “Medium” AND Duration is “Medium” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Moderate”.

R-29: IF Noise Level is “Medium” AND Duration is “Long” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Slight”.

R-30: IF Noise Level is “Medium” AND Duration is “Long” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Slight”.

R-31: IF Noise Level is “Medium” AND Duration is “Long” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Moderate”.

R-32: IF Noise Level is “Medium” AND Duration is “Long” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Severe”.

R-33: IF Noise Level is “High” AND Duration is “Very Short” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Negligible”.

R-34: IF Noise Level is “High” AND Duration is “Very Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Negligible”.

A-8
R-35: IF Noise Level is "High" AND Duration is "Very Short" AND Person-by-Age is "Adult" THEN Sleep Disturbance is "Slight".

R-36: IF Noise Level is "High" AND Duration is "Very Short" AND Person-by-Age is "Old" THEN Sleep Disturbance is "Slight".

R-37: IF Noise Level is "High" AND Duration is "Short" AND Person-by-Age is "Very Young" THEN Sleep Disturbance is "Negligible".

R-38: IF Noise Level is "High" AND Duration is "Short" AND Person-by-Age is "Young" THEN Sleep Disturbance is "Slight".

R-39: IF Noise Level is "High" AND Duration is "Short" AND Person-by-Age is "Adult" THEN Sleep Disturbance is "Slight".

R-40: IF Noise Level is "High" AND Duration is "Short" AND Person-by-Age is "Old" THEN Sleep Disturbance is "Moderate".

R-41: IF Noise Level is "High" AND Duration is "Medium" AND Person-by-Age is "Very Young" THEN Sleep Disturbance is "Negligible".

R-42: IF Noise Level is "High" AND Duration is "Medium" AND Person-by-Age is "Young" THEN Sleep Disturbance is "Slight".

R-43: IF Noise Level is "High" AND Duration is "Medium" AND Person-by-Age is "Adult" THEN Sleep Disturbance is "Moderate".

R-44: IF Noise Level is "High" AND Duration is "Medium" AND Person-by-Age is "Old" THEN Sleep Disturbance is "Severe".

R-45: IF Noise Level is "High" AND Duration is "Long" AND Person-by-Age is "Very Young" THEN Sleep Disturbance is "Slight".

R-46: IF Noise Level is "High" AND Duration is "Long" AND Person-by-Age is "Young" THEN Sleep Disturbance is "Moderate".

R-47: IF Noise Level is "High" AND Duration is "Long" AND Person-by-Age is "Adult" THEN Sleep Disturbance is "Severe".

R-48: IF Noise Level is "High" AND Duration is "Long" AND Person-by-Age is "Old" THEN Sleep Disturbance is "Severe".

R-49: IF Noise Level is "Very High" AND Duration is "Very Short" AND Person-by-Age is "Very Young" THEN Sleep Disturbance is "Negligible".

R-50: IF Noise Level is "Very High" AND Duration is "Very Short" AND Person-by-Age is "Young" THEN Sleep Disturbance is "Slight".

R-51: IF Noise Level is "Very High" AND Duration is "Very Short" AND Person-by-Age is "Adult" THEN Sleep Disturbance is "Slight".

R-52: IF Noise Level is "Very High" AND Duration is "Very Short" AND Person-by-Age is "Old" THEN Sleep Disturbance is "Moderate".

R-53: IF Noise Level is "Very High" AND Duration is "Short" AND Person-by-Age is "Very Young" THEN Sleep Disturbance is "Negligible".

A-9
R-54: IF Noise Level is “Very High” AND Duration is “Short” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Slight”.

R-55: IF Noise Level is “Very High” AND Duration is “Short” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Moderate”.

R-56: IF Noise Level is “Very High” AND Duration is “Short” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Severe”.

R-57: IF Noise Level is “Very High” AND Duration is “Medium” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Slight”.

R-58: IF Noise Level is “Very High” AND Duration is “Medium” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Moderate”.

R-59: IF Noise Level is “Very High” AND Duration is “Medium” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Severe”.

R-60: IF Noise Level is “Very High” AND Duration “Medium” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Severe”.

R-61: IF Noise Level is “Very High” AND Duration is “Long” AND Person-by-Age is “Very Young” THEN Sleep Disturbance is “Moderate”.

R-62: IF Noise Level is “Very High” AND Duration is “Long” AND Person-by-Age is “Young” THEN Sleep Disturbance is “Severe”.

R-63: IF Noise Level is “Very High” AND Duration is “Long” AND Person-by-Age is “Adult” THEN Sleep Disturbance is “Severe”.

R-64: IF Noise Level is “Very High” AND Duration is “Long” AND Person-by-Age is “Old” THEN Sleep Disturbance is “Severe”.

4. Effects of Noise Pollution on Annoyance

R-1: IF Noise Level is “Low” AND Duration is “Very Short” AND Status is “Very Poor” THEN Annoyance is “Negligible”.

R-2: IF Noise Level is “Low” AND Duration is “Very Short” AND Status is “Poor” THEN Annoyance is “Negligible”.

R-3: IF Noise Level is “Low” AND Duration is “Very Short” AND Status is “Middle Class” THEN Annoyance is “Negligible”.

R-4: IF Noise Level is “Low” AND Duration is “Very Short” AND Status is “Upper Class” THEN Annoyance is “Negligible”.

R-5: IF Noise Level is “Low” AND Duration is “Very Short” AND Status is “Creamy Layer” THEN Annoyance is “Negligible”.

R-6: IF Noise Level is “Low” AND Duration is “Short” AND Status is “Very Poor” THEN Annoyance is “Negligible”.
R-7: IF Noise Level is "Low" AND Duration is "Short" AND Status is "Poor"
THEN Annoyance is "Negligible".

R-8: IF Noise Level is "Low" AND Duration is "Short" AND Status is "Middle Class"
THEN Annoyance is "Negligible".

R-9: IF Noise Level is "Low" AND Duration is "Short" AND Status is "Upper Class"
THEN Annoyance is "Negligible".

R-10: IF Noise Level is "Low" AND Duration is "Short" AND Status is "Creamy Layer"
THEN Annoyance is "Less".

R-11: IF Noise Level is "Low" AND Duration is "Medium" AND Status is "Very Poor"
THEN Annoyance is "Negligible".

R-12: IF Noise Level is "Low" AND Duration is "Medium" AND Status is "Poor"
THEN Annoyance is "Negligible".

R-13: IF Noise Level is "Low" AND Duration is "Medium" AND Status is "Middle Class"
THEN Annoyance is "Negligible".

R-14: IF Noise Level is "Low" AND Duration is "Medium" AND Status is "Upper Class"
THEN Annoyance is "Less".

R-15: IF Noise Level is "Low" AND Duration is "Medium" AND Status is "Creamy Layer"
THEN Annoyance is "Much".

R-16: IF Noise Level is "Low" AND Duration is "Long" AND Status is "Very Poor"
THEN Annoyance is "Negligible".

R-17: IF Noise Level is "Low" AND Duration is "Long" AND Status is "Poor"
THEN Annoyance is "Negligible".

R-18: IF Noise Level is "Low" AND Duration is "Long" AND Status is "Middle Class"
THEN Annoyance is "Less".

R-19: IF Noise Level is "Low" AND Duration is "Long" AND Status is "Upper Class"
THEN Annoyance is "Much".

R-20: IF Noise Level is "Low" AND Duration is "Long" AND Status is "Creamy Layer"
THEN Annoyance is "More".

R-21: IF Noise Level is "Medium" AND Duration is "Very Short" AND Status is "Very Poor"
THEN Annoyance is "Negligible".

R-22: IF Noise Level is "Medium" AND Duration is "Very Short" AND Status is "Poor"
THEN Annoyance is "Negligible".

R-23: IF Noise Level is "Medium" AND Duration is "Very Short" AND Status is "Middle Class"
THEN Annoyance is "Negligible".

R-24: IF Noise Level is "Medium" AND Duration is "Very Short" AND Status is "Upper Class"
THEN Annoyance is "Negligible".

R-25: IF Noise Level is "Medium" AND Duration is "Very Short" AND Status is "Creamy Layer"
THEN Annoyance is "Less".
R-26: IF Noise Level is "Medium" AND Duration is "Short" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-27: IF Noise Level is "Medium" AND Duration is "Short" AND Status is "Poor" THEN Annoyance is "Negligible".

R-28: IF Noise Level is "Medium" AND Duration is "Short" AND Status is "Middle Class" THEN Annoyance is "Negligible".

R-29: IF Noise Level is "Medium" AND Duration is "Short" AND Status is "Upper Class" THEN Annoyance is "Less".

R-30: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Creamy Layer" THEN Annoyance is "Negligible".

R-31: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-32: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Poor" THEN Annoyance is "Negligible".

R-33: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Middle Class" THEN Annoyance is "Less".

R-34: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Upper Class" THEN Annoyance is "Much".

R-35: IF Noise Level is "Medium" AND Duration is "Medium" AND Status is "Creamy Layer" THEN Annoyance is "More".

R-36: IF Noise Level is "Medium" AND Duration is "Long" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-37: IF Noise Level is "Medium" AND Duration is "Long" AND Status is "Poor" THEN Annoyance is "Less".

R-38: IF Noise Level is "Medium" AND Duration is "Long" AND Status is "Middle Class" THEN Annoyance is "Much".

R-39: IF Noise Level is "Medium" AND Duration is "Long" AND Status is "Upper Class" THEN Annoyance is "More".

R-40: IF Noise Level is "Medium" AND Duration is "Long" AND Status is "Creamy Layer" THEN Annoyance is "More".

R-41: IF Noise Level is "High" AND Duration is "Very Short" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-42: IF Noise Level is "High" AND Duration is "Very Short" AND Status is "Poor" THEN Annoyance is "Negligible".

R-43: IF Noise Level is "High" AND Duration is "Very Short" AND Status is "Middle Class" THEN Annoyance is "Negligible".

R-44: IF Noise Level is "High" AND Duration is "Very Short" AND Status is "Upper Class" THEN Annoyance is "Less".
R-45: IF Noise Level is "High" AND Duration is "Very Short" AND Status is "Creamy layer" THEN Annoyance is "Less".

R-46: IF Noise Level is "High" AND Duration is "Short" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-47: IF Noise Level is "High" AND Duration is "Short" AND Status is "Poor" THEN Annoyance is "Negligible".

R-48: IF Noise Level is "High" AND Duration is "Short" AND Status is "Middle Class" THEN Annoyance is "Less".

R-49: IF Noise Level is "High" AND Duration is "Short" AND Status is "Upper Class" THEN Annoyance is "Less".

R-50: IF Noise Level is "High" AND Duration is "Short" AND Status is "Creamy layer" THEN Annoyance is "Much".

R-51: IF Noise Level is "High" AND Duration is "Medium" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-52: IF Noise Level is "High" AND Duration is "Medium" AND Status is "Poor" THEN Annoyance is "Less".

R-53: IF Noise Level is "High" AND Duration is "Medium" AND Status is "Middle Class" THEN Annoyance is "Much".

R-54: IF Noise Level is "High" AND Duration is "Medium" AND Status is "Upper Class" THEN Annoyance is "Much".

R-55: IF Noise Level is "High" AND Duration is "Medium" AND Status is "Creamy layer" THEN Annoyance is "More".

R-56: IF Noise Level is "High" AND Duration is "Long" AND Status is "Very Poor" THEN Annoyance is "Less".

R-57: IF Noise Level is "High" AND Duration is "Long" AND Status is "Poor" THEN Annoyance is "Much".

R-58: IF Noise Level is "High" AND Duration is "Long" AND Status is "Middle Class" THEN Annoyance is "More".

R-59: IF Noise Level is "High" AND Duration is "Long" AND Status is "Upper Class" THEN Annoyance is "More".

R-60: IF Noise Level is "High" AND Duration is "Long" AND Status is "Creamy Layer" THEN Annoyance is "Too Much".

R-61: IF Noise Level is "Very High" AND Duration is "Very Short" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-62: IF Noise Level is "Very High" AND Duration is "Very Short" AND Status is "Poor" THEN Annoyance is "Negligible".

R-63: IF Noise Level is "Very High" AND Duration is "Very Short" AND Status is "Middle Class" THEN Annoyance is "Negligible".

A-13
R-64: IF Noise Level is "Very High" AND Duration is "Very Short" AND Status is "Upper Class" THEN Annoyance is "Less".

R-65: IF Noise Level is "Very High" AND Duration is "Very Short" AND Status is "Creamy Layer" THEN Annoyance is "Much".

R-66: IF Noise Level is "Very High" AND Duration is "Short" AND Status is "Very Poor" THEN Annoyance is "Negligible".

R-67: IF Noise Level is "Very High" AND Duration is "Short" AND Status is "Poor" THEN Annoyance is "Negligible".

R-68: IF Noise Level is "Very High" AND Duration is "Short" AND Status is "Middle Class" THEN Annoyance is "Less".

R-69: IF Noise Level is "Very High" AND Duration is "Short" AND Status is "Upper Class" THEN Annoyance is "Much".

R-70: IF Noise Level is "Very High" AND Duration is "Short" AND Status is "Creamy Layer" THEN Annoyance is "More".

R-71: IF Noise Level is "Very High" AND Duration is "Medium" AND Status is "Very Poor" THEN Annoyance is "Less".

R-72: IF Noise Level is "Very High" AND Duration is "Medium" AND Status is "Poor" THEN Annoyance is "Much".

R-73: IF Noise Level is "Very High" AND Duration is "Medium" AND Status is "Middle Class" THEN Annoyance is "Much".

R-74: IF Noise Level is "Very High" AND Duration is "Medium" AND Status is "Upper Class" THEN Annoyance is "More".

R-75: IF Noise Level is "Very High" AND Duration is "Medium" AND Status is "Creamy Layer" THEN Annoyance is "Too Much".

R-76: IF Noise Level is "Very High" AND Duration is "Long" AND Status is "Very Poor" THEN Annoyance is "Much".

R-77: IF Noise Level is "Very High" AND Duration is "Long" AND Status is "Poor" THEN Annoyance is "More".

R-78: IF Noise Level is "Very High" AND Duration is "Long" AND Status is "Middle Class" THEN Annoyance is "More".

R-79: IF Noise Level is "Very High" AND Duration is "Long" AND Status is "Upper Class" THEN Annoyance is "Too Much".

R-80: IF Noise Level is "Very High" AND Duration is "Long" AND Status is "Creamy Layer" THEN Annoyance is "Too Much".
5. Effects of Noise Pollution on Health

R-1: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-2: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-3: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Negligible”.

R-4: IF Noise Level is “Low” AND Exposure Time is “Very Short” AND Person-by-Age is “Old” THEN Deterioration in Health is “Negligible”.

R-5: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-6: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-7: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Negligible”.

R-8: IF Noise Level is “Low” AND Exposure Time is “Short” AND Person-by-Age is “Old” THEN Deterioration in Health is “Negligible”.

R-9: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-10: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-11: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Negligible”.

R-12: IF Noise Level is “Low” AND Exposure Time is “Medium” AND Person-by-Age is “Old” THEN Deterioration in Health is “Negligible”.

R-13: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-14: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-15: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Negligible”.

R-16: IF Noise Level is “Low” AND Exposure Time is “Long” AND Person-by-Age is “Old” THEN Deterioration in Health is “Negligible”.

R-17: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-18: IF Noise Level is “Medium” AND Exposure Time is “Very Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

A-15
R-19: IF Noise Level is "Medium" AND Exposure Time is "Very Short" AND Person-by-Age is "Adult" THEN Deterioration in Health is "Negligible".

R-20: IF Noise Level is "Medium" AND Exposure Time is "Very Short" AND Person-by-Age is "Old" THEN Deterioration in Health is "Negligible".

R-21: IF Noise Level is "Medium" AND Exposure Time is "Short" AND Person-by-Age is "Very Young" THEN Deterioration in Health is "Negligible".

R-22: IF Noise Level is "Medium" AND Exposure Time is "Short" AND Person-by-Age is "Young" THEN Deterioration in Health is "Negligible".

R-23: IF Noise Level is "Medium" AND Exposure Time is "Short" AND Person-by-Age is "Adult" THEN Deterioration in Health is "Negligible".

R-24: IF Noise Level is "Medium" AND Exposure Time is "Short" AND Person-by-Age is "Old" THEN Deterioration in Health is "Negligible".

R-25: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Very Young" THEN Deterioration in Health is "Negligible".

R-26: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Young" THEN Deterioration in Health is "Negligible".

R-27: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Adult" THEN Deterioration in Health is "Slight".

R-28: IF Noise Level is "Medium" AND Exposure Time is "Medium" AND Person-by-Age is "Old" THEN Deterioration in Health is "Slight".

R-29: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Very Young" THEN Deterioration in Health is "Negligible".

R-30: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Young" THEN Deterioration in Health is "Slight".

R-31: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Adult" THEN Deterioration in Health is "Moderate".

R-32: IF Noise Level is "Medium" AND Exposure Time is "Long" AND Person-by-Age is "Old" THEN Deterioration in Health is "Moderate".

R-33: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Very Young" THEN Deterioration in Health is "Negligible".

R-34: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Young" THEN Deterioration in Health is "Negligible".

R-35: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Adult" THEN Deterioration in Health is "Negligible".

R-36: IF Noise Level is "High" AND Exposure Time is "Very Short" AND Person-by-Age is "Old" THEN Deterioration in Health is "Negligible".

R-37: IF Noise Level is "High" AND Exposure Time is "Short" AND Person-by-Age is "Very Young" THEN Deterioration in Health is "Negligible".

A-16
R-38: IF Noise Level is “High” AND Exposure Time is “Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-39: IF Noise Level is “High” AND Exposure Time is “Short” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Slight”.

R-40: IF Noise Level is “High” AND Exposure Time is “Short” AND Person-by-Age is “Old” THEN Deterioration in Health is “Slight”.

R-41: IF Noise Level is “High” AND Exposure Time is “Medium” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-42: IF Noise Level is “High” AND Exposure Time is “Medium” AND Person-by-Age is “Young” THEN Deterioration in Health is “Slight”.

R-43: IF Noise Level is “High” AND Exposure Time is “Medium” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Moderate”.

R-44: IF Noise Level is “High” AND Exposure Time is “Medium” AND Person-by-Age is “Old” THEN Deterioration in Health is “Moderate”.

R-45: IF Noise Level is “High” AND Exposure Time is “Long” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Slight”.

R-46: IF Noise Level is “High” AND Exposure Time is “Long” AND Person-by-Age is “Young” THEN Deterioration in Health is “Moderate”.

R-47: IF Noise Level is “High” AND Exposure Time is “Long” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Severe”.

R-48: IF Noise Level is “High” AND Exposure Time is “Long” AND Person-by-Age is “Old” THEN Deterioration in Health is “Severe”.

R-49: IF Noise Level is “Very High” AND Exposure Time is “Very Short” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-50: IF Noise Level is “Very High” AND Exposure Time is “Very Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Negligible”.

R-51: IF Noise Level is “Very High” AND Exposure Time is “Very Short” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Slight”.

R-52: IF Noise Level is “Very High” AND Exposure Time is “Very Short” AND Person-by-Age is “Old” THEN Deterioration in Health is “Moderate”.

R-53: IF Noise Level is “Very High” AND Exposure Time is “Short” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Negligible”.

R-54: IF Noise Level is “Very High” AND Exposure Time is “Short” AND Person-by-Age is “Young” THEN Deterioration in Health is “Slight”.

R-55: IF Noise Level is “Very High” AND Exposure Time is “Short” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Moderate”.

R-56: IF Noise Level is “Very High” AND Exposure Time is “Short” AND Person-by-Age is “Old” THEN Deterioration in Health is “Severe”.

A-17
R-57: IF Noise Level is “Very High” AND Exposure Time is “Medium” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Slight”.

R-58: IF Noise Level is “Very High” AND Exposure Time is “Medium” AND Person-by-Age is “Young” THEN Deterioration in Health is “Moderate”.

R-59: IF Noise Level is “Very High” AND Exposure Time is “Medium” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Severe”.

R-60: IF Noise Level is “Very High” AND Exposure Time is “Medium” AND Person-by-Age is “Old” THEN Deterioration in Health is “Severe”.

R-61: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Very Young” THEN Deterioration in Health is “Moderate”.

R-62: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Young” THEN Deterioration in Health is “Severe”.

R-63: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Adult” THEN Deterioration in Health is “Severe”.

R-64: IF Noise Level is “Very High” AND Exposure Time is “Long” AND Person-by-Age is “Old” THEN Deterioration in Health is “Severe”.

6. Effects of Noise Pollution on Speech Interference

R-1: IF Noise Level is “Low” AND Distance is “Small” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-2: IF Noise Level is “Low” AND Distance is “Small” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-3: IF Noise Level is “Low” AND Distance is “Small” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-4: IF Noise Level is “Low” AND Distance is “Small” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-5: IF Noise Level is “Low” AND Distance is “Normal” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-6: IF Noise Level is “Low” AND Distance is “Normal” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-7: IF Noise Level is “Low” AND Distance is “Normal” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-8: IF Noise Level is “Low” AND Distance is “Normal” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-9: IF Noise Level is “Low” AND Distance is “Medium” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

A-18
R-10: IF Noise Level is “Low” AND Distance is “Medium” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-11: IF Noise Level is “Low” AND Distance is “Medium” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-12: IF Noise Level is “Low” AND Distance is “Medium” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-13: IF Noise Level is “Low” AND Distance is “Large” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-14: IF Noise Level is “Low” AND Distance is “Large” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-15: IF Noise Level is “Low” AND Distance is “Large” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-16: IF Noise Level is “Low” AND Distance is “Large” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-17: IF Noise Level is “Medium” AND Distance is “Small” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-18: IF Noise Level is “Medium” AND Distance is “Small” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-19: IF Noise Level is “Medium” AND Distance is “Small” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-20: IF Noise Level is “Medium” AND Distance is “Small” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-21: IF Noise Level is “Medium” AND Distance is “Normal” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-22: IF Noise Level is “Medium” AND Distance is “Normal” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-23: IF Noise Level is “Medium” AND Distance is “Normal” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-24: IF Noise Level is “Medium” AND Distance is “Normal” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-25: IF Noise Level is “Medium” AND Distance is “Medium” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-26: IF Noise Level is “Medium” AND Distance is “Medium” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-27: IF Noise Level is “Medium” AND Distance is “Medium” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Slight”.

R-28: IF Noise Level is “Medium” AND Distance is “Medium” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Moderate”. 

A-19
R-29: IF Noise Level is “Medium” AND Distance is “Large” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-30: IF Noise Level is “Medium” AND Distance is “Large” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Slight”.

R-31: IF Noise Level is “Medium” AND Distance is “Large” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-32: IF Noise Level is “Medium” AND Distance is “Large” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.

R-33: IF Noise Level is “High” AND Distance is “Small” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-34: IF Noise Level is “High” AND Distance is “Small” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-35: IF Noise Level is “High” AND Distance is “Small” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-36: IF Noise Level is “High” AND Distance is “Small” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Slight”.

R-37: IF Noise Level is “High” AND Distance is “Normal” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-38: IF Noise Level is “High” AND Distance is “Normal” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-39: IF Noise Level is “High” AND Distance is “Normal” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Slight”.

R-40: IF Noise Level is “High” AND Distance is “Normal” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-41: IF Noise Level is “High” AND Distance is “Medium” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-42: IF Noise Level is “High” AND Distance is “Medium” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Slight”.

R-43: IF Noise Level is “High” AND Distance is “Medium” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-44: IF Noise Level is “High” AND Distance is “Medium” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.

R-45: IF Noise Level is “High” AND Distance is “Large” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Slight”.

R-46: IF Noise Level is “High” AND Distance is “Large” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-47: IF Noise Level is “High” AND Distance is “Large” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “High”.

A-20
R-48: IF Noise Level is “High” AND Distance is “Large” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.

R-49: IF Noise Level is “Very High” AND Distance is “Small” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-50: IF Noise Level is “Very High” AND Distance is “Small” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-51: IF Noise Level is “Very High” AND Distance is “Small” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Slight”.

R-52: IF Noise Level is “Very High” AND Distance is “Small” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-53: IF Noise Level is “Very High” AND Distance is “Normal” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Negligible”.

R-54: IF Noise Level is “Very High” AND Distance is “Normal” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Slight”.

R-55: IF Noise Level is “Very High” AND Distance is “Normal” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-56: IF Noise Level is “Very High” AND Distance is “Normal” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.

R-57: IF Noise Level is “Very High” AND Distance is “Medium” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Slight”.

R-58: IF Noise Level is “Very High” AND Distance is “Medium” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-59: IF Noise Level is “Very High” AND Distance is “Medium” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “High”.

R-60: IF Noise Level is “Very High” AND Distance is “Medium” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.

R-61: IF Noise Level is “Very High” AND Distance is “Large” AND Person-by-Age is “Very Young” THEN Reduction in Sentence Intelligibility is “Moderate”.

R-62: IF Noise Level is “Very High” AND Distance is “Large” AND Person-by-Age is “Young” THEN Reduction in Sentence Intelligibility is “High”.

R-63: IF Noise Level is “Very High” AND Distance is “Large” AND Person-by-Age is “Adult” THEN Reduction in Sentence Intelligibility is “High”.

R-64: IF Noise Level is “Very High” AND Distance is “Large” AND Person-by-Age is “Old” THEN Reduction in Sentence Intelligibility is “High”.
# APPENDIX – B

## MATLAB PROGRAM FOR VARIOUS OUTPUTS USING MAMDANI METHOD

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<td>OrMethod='max'</td>
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<tr>
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<tr>
<td>AggMethod='max'</td>
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**[Input1]**

<table>
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<tr>
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<tr>
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<td>NumMFs=4</td>
</tr>
<tr>
<td>MF1='Low':trimf,[30 30 60]</td>
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</tr>
<tr>
<td>MF2='Medium':trimf,[50 65 80]</td>
<td>MF2='Medium':trimf,[50 65 80]</td>
</tr>
<tr>
<td>MF3='High':trimf,[70 85 100]</td>
<td>MF3='High':trimf,[70 85 100]</td>
</tr>
<tr>
<td>MF4='VeryHigh':trimf,[90 120 120]</td>
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**[Input2]**

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<tr>
<td>MF1='Simple':trimf,[0 0 4]</td>
<td>MF1='VeryShort':trimf,[0 0 2]</td>
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<tr>
<td>MF2='Moderate':trimf,[3 5 7]</td>
<td>MF2='Short':trimf,[1 2.5 4]</td>
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<tr>
<td>MF3='Complex':trimf,[6 10 10]</td>
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**[Input3]**

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<td>NumMFs=4</td>
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<tr>
<td>MF2='Short':trimf,[1 2.5 4]</td>
<td>MF2='Young':trimf,[15 30 45]</td>
</tr>
<tr>
<td>MF3='Medium':trimf,[3 5 7]</td>
<td>MF3='Adult':trimf,[40 55 70]</td>
</tr>
<tr>
<td>MF4='Long':trimf,[6 10 10]</td>
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**[Output1]**

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<td>MF1='NotAffected':trimf,[0 0 20]</td>
</tr>
<tr>
<td>MF2='SlightlyDegraded':trimf,[10 25 40]</td>
<td>MF2='SlightlyDegraded':trimf,[10 25 40]</td>
</tr>
<tr>
<td>MF3='ModeratelyDegraded':trimf,[30 45 60]</td>
<td>MF3='ModeratelyDegraded':trimf,[30 45 60]</td>
</tr>
<tr>
<td>MF4='HighlyDegraded':trimf,[50 65 80]</td>
<td>MF4='HighlyDegraded':trimf,[50 65 80]</td>
</tr>
<tr>
<td>MF5='SeverelyDegraded':trimf,[70 100 100]</td>
<td>MF5='SeverelyDegraded':trimf,[70 100 100]</td>
</tr>
<tr>
<td>Sleep</td>
<td>Annoyance</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
</tr>
<tr>
<td>Name='Sleep'</td>
<td>Name='Annoyance'</td>
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<tr>
<td>Type='mamdani'</td>
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<td>OrMethod='max'</td>
<td>OrMethod='max'</td>
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<tr>
<td>ImpMethod='min'</td>
<td>ImpMethod='min'</td>
</tr>
<tr>
<td>AggMethod='max'</td>
<td>AggMethod='max'</td>
</tr>
<tr>
<td>DefuzzMethod='centroid'</td>
<td>DefuzzMethod='centroid'</td>
</tr>
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</table>

[Input1]
Name='NoiseLevel'
Range=[30 120]
NumMFs=4
MF1='Low':trimf,[30 30 60]
MF2='Medium':trimf,[50 65 80]
MF3='High':trimf,[70 85 100]
MF4='VeryHigh':trimf,[90 120 120]

[Input2]
Name='Duration'
Range=[0 100]
NumMFs=4
MF1='VeryShort':trimf,[0 0 20]
MF2='Short':trimf,[10 25 40]
MF3='Medium':trimf,[30 50 70]
MF4='Long':trimf,[60 100 100]

[Input3]
Name='Person-by-Age'
Range=[0 80]
NumMFs=4
MF1='VeryYoung':trimf,[0 0 20]
MF2='Young':trimf,[15 30 45]
MF3='Adult':trimf,[40 55 70]
MF4='Old':trimf,[65 80 80]

[Output1]
Name='Sleep'
Range=[0 100]
NumMFs=4
MF1='NotAffected':trimf,[0 0 20]
MF2='SlightlyDisturbed':trimf,[10 25 40]
MF3='ModeratelyDisturbed':trimf,[30 50 70]
MF4='SeverelyDisturbed':trimf,[60 100 100]
<table>
<thead>
<tr>
<th>Input1</th>
<th>Input2</th>
<th>Input3</th>
</tr>
</thead>
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<td><strong>Name</strong>='NoiseLevel'</td>
<td><strong>Name</strong>='Distance'</td>
</tr>
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<td>NumMFs=4</td>
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<td>MF1='Low':trimf,[30 30 60]</td>
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<td>MF2='Medium':trimf,[50 65 80]</td>
<td>MF2='Medium':trimf,[50 65 80]</td>
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<td>MF3='High':trimf,[70 85 100]</td>
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<td>MF3='Medium':trimf,[2 2.75 3.5]</td>
</tr>
<tr>
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<td>MF4='VeryHigh':trimf,[90 120 120]</td>
<td>MF4='Large':trimf,[3 5 5]</td>
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</table>

<table>
<thead>
<tr>
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<tbody>
<tr>
<td><strong>Name</strong>='SentenceIntelligibility'</td>
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<tr>
<td>NumMFs=4</td>
</tr>
<tr>
<td>MF1='NotAffected':trimf,[0 0 20]</td>
</tr>
<tr>
<td>MF2='SlightlyDeteriorated':trimf,[10 25 40]</td>
</tr>
<tr>
<td>MF3='ModeratelyDeteriorated':trimf,[10 25 40]</td>
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<tr>
<td>MF4='SeverelyDeteriorated':trimf,[60 80 100]</td>
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</table>

<table>
<thead>
<tr>
<th>Input1</th>
<th>Input2</th>
<th>Input3</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Name</strong>='ExposureTime'</td>
<td><strong>Name</strong>='ExposureTime'</td>
<td><strong>Name</strong>='Person-by-Age'</td>
</tr>
<tr>
<td>Range=[0 10]</td>
<td>Range=[0 10]</td>
<td>Range=[0 80]</td>
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<tr>
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<td>NumMFs=4</td>
<td>NumMFs=4</td>
</tr>
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<td>MF1='VeryShort':trimf,[0 0 2]</td>
<td>MF1='VeryYoung':trimf,[0 0 20]</td>
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<td>MF2='Short':trimf,[1 2 5 4]</td>
<td>MF2='Short':trimf,[1 2 5 4]</td>
<td>MF2='Young':trimf,[15 30 45]</td>
</tr>
<tr>
<td>MF3='Medium':trimf,[3 5 7]</td>
<td>MF3='Medium':trimf,[3 5 7]</td>
<td>MF3='Adult':trimf,[40 55 70]</td>
</tr>
<tr>
<td>MF4='Long':trimf,[6 10 10]</td>
<td>MF4='Long':trimf,[6 10 10]</td>
<td>MF4='Old':trimf,[65 80 80]</td>
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</tbody>
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<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
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<td><strong>Name</strong>='Health'</td>
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<td>NumMFs=4</td>
</tr>
<tr>
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</tr>
<tr>
<td>MF2='SlightlyDeteriorated':trimf,[10 25 40]</td>
</tr>
<tr>
<td>MF3='ModeratelyDeteriorated':trimf,[30 50 70]</td>
</tr>
<tr>
<td>MF4='SeverelyDeteriorated':trimf,[60 100 100]</td>
</tr>
</tbody>
</table>
# Appendix – C

## MATLAB PROGRAM FOR VARIOUS OUTPUTS USING SUGENO METHOD

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<td>OrMethod='probor'</td>
</tr>
<tr>
<td>ImpMethod='min'</td>
<td>ImpMethod='min'</td>
</tr>
<tr>
<td>AggMethod='max'</td>
<td>AggMethod='max'</td>
</tr>
<tr>
<td>DefuzzMethod='wtaver'</td>
<td>DefuzzMethod='wtaver'</td>
</tr>
</tbody>
</table>

### [Input1]
**Name**='NoiseLevel'
**Range**=[30 120]
NumMFs=4
MF1='Low':'trimf,[30 30 60]
MF2='Medium':'trimf,[50 65 80]
MF3='High':'trimf,[70 85 100]
MF4='VeryHigh':'trimf,[90 120 120]

### [Input2]
**Name**='Type-of-Task'
**Range**=[0 10]
NumMFs=3
MF1='Simple':'trimf,[0 0 4]
MF2='Moderate':'trimf,[3 5 7]
MF3='Complex':'trimf,[6 10 10]

### [Input3]
**Name**='ExposureTime'
**Range**=[0 10]
NumMFs=4
MF1='VeryShort':'trimf,[0 0 2]
MF2='Short':'trimf,[1 2.5 4]
MF3='Medium':'trimf,[3 5 7]
MF4='Long':'trimf,[6 10 10]

### [Output1]
**Name**='HumanPerformanceS'
**Range**=[0 100]
NumMFs=5
MF1='NotAffected':'constant',10
MF2='SlightlyDegraded':'constant',25
MF3='ModeratelyDegraded':'constant',45
MF4='HighlyDegraded':'constant',65
MF5='SeverelyDegraded':'constant',85

### [Input2]
**Name**='ExposureTime'
**Range**=[0 10]
NumMFs=4
MF1='VeryShort':'trimf,[0 0 2]
MF2='Short':'trimf,[1 2.5 4]
MF3='Medium':'trimf,[3 5 7]
MF4='Long':'trimf,[6 10 10]

### [Input3]
**Name**='Person-by-Age'
**Range**=[0 80]
NumMFs=4
MF1='VeryYoung':'trimf,[0 0 20]
MF2='Young':'trimf,[15 30 45]
MF3='Adult':'trimf,[40 55 70]
MF4='Old':'trimf,[65 80 80]

### [Output1]
**Name**='HearingLoss'
**Range**=[0 100]
NumMFs=4
MF1='NotAffected':'constant',10
MF2='Momentarily Affected':'constant',25
MF3='Temporarily Affected':'constant',50
MF4='Permanently Affected':'constant',80
<table>
<thead>
<tr>
<th><strong>Sleep</strong></th>
<th><strong>Annoyance</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Name='Sleep'</td>
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<tr>
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<tr>
<td>OrMethod='probor'</td>
<td>OrMethod='probor'</td>
</tr>
<tr>
<td>ImpMethod='min'</td>
<td>ImpMethod='min'</td>
</tr>
<tr>
<td>AggMethod='max'</td>
<td>AggMethod='max'</td>
</tr>
<tr>
<td>DefuzzMethod='wrnver'</td>
<td>DefuzzMethod='wtaver'</td>
</tr>
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</table>

**[Input1]**
Name='NoiseLevel'
Range=[30 120]
NumMFs=4
MF1='Low':'trimf,[30 30 60]
MF2='Medium':'trimf,[50 65 80]
MF3='High':'trimf,[70 85 100]
MF4='VeryHigh':'trimf,[90 120 120]

**[Input2]**
Name='Duration'
Range=[0 100]
NumMFs=4
MF1='VeryShort':'trimf,[0 0 20]
MF2='Short':'trimf,[10 25 40]
MF3='Medium':'trimf,[30 50 70]
MF4='Long':'trimf,[60 100 100]

**[Input3]**
Name='Person-by-Age'
Range=[0 80]
NumMFs=4
MF1='VeryYoung':'trimf,[0 0 20]
MF2='Young':'trimf,[15 30 45]
MF3='Adult':'trimf,[40 55 70]
MF4='Old':'trimf,[65 80 80]

**[Output1]**
Name='Sleep'
Range=[0 100]
NumMFs=4
MF1='NotAffected':'constant',10
MF2='SlightlyDisturbed':'constant',25
MF3='ModeratelyDisturbed':'constant',50
MF4='SeverelyDisturbed':'constant',80

**C-2**
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<td>ImpMethod='min'</td>
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<tr>
<td>AggMethod='max'</td>
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<tr>
<td>DefuzzMethod='wtaver'</td>
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<td>[Input1]</td>
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<td>MF1='Low':trimf,[30 30 60]</td>
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<tr>
<td>MF2='Medium':trimf,[50 65 80]</td>
<td>MF2='Medium':trimf,[50 65 80]</td>
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<tr>
<td>MF3='High':trimf,[70 85 100]</td>
<td>MF3='High':trimf,[70 85 100]</td>
</tr>
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<td>MF4='VeryHigh':trimf,[90 120 120]</td>
<td>MF4='VeryHigh':trimf,[90 120 120]</td>
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<tr>
<td>[Input2]</td>
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</tr>
<tr>
<td>Name='ExposureTime'</td>
<td>Name='Distance'</td>
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<td>MF3='Medium':trimf,[3 5 7]</td>
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<tr>
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<td>[Input3]</td>
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<tr>
<td>Name='Person-by-Age'</td>
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</tr>
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<td>MF2='Young':trimf,[15 30 45]</td>
<td>MF2='Young':trimf,[15 30 45]</td>
</tr>
<tr>
<td>MF3='Adult':trimf,[40 55 70]</td>
<td>MF3='Adult':trimf,[40 55 70]</td>
</tr>
<tr>
<td>MF4='Old':trimf,[65 80 80]</td>
<td>MF4='Old':trimf,[65 80 80]</td>
</tr>
<tr>
<td>[Output1]</td>
<td></td>
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<td>Name='Health'</td>
<td>Name='SentenceIntelligibility'</td>
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<td>MF2='SlightlyReduced':constant,25</td>
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<td>MF3='ModeratelyDeteriorated':constant,50</td>
<td>MF3='ModeratelyReduced':constant,50</td>
</tr>
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<td>MF4='SeverelyDeteriorated':constant,80</td>
<td>MF4='HighlyReduced':constant,80</td>
</tr>
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</table>
Appendix – D

Community Noise

Edited by: Birgitta Berglund & Thomas Lindvall, Stockholm, Sweden, 1995

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Figure 3.

Hearing loss as a function of duration in noise exposure in years. Mean audio-grams for 203 miners, best ear tested. [a < 1 year; b = 1-5 years; c = 6-10 years; d = 11-20 years; e = 21-30 years; f > 30 years; From: B. Johansson, 1952.]

Figure 4.

Percentage of workers with hearing impairment (average hearing loss at 1, 2, and 3 kHz > 25 dB) [From: US National Institute for Occupational Safety and Health (Lampert & T.L. Henderson, 1973)].
Figure 6.
Maximum distances outdoors over which conversation is considered to be satisfactory intelligible in steady noise (U.S. EPA, 1974b).

Figure 7.
Normal voice intelligibility as a function of the steady background sound level in a typical living room (U.S. EPA, 1974b).
Figure 9. Percentage of respondents highly annoyed as a function of exposure to general transportation noise (day-night average sound level in dBA Ldn).

Percentage of respondents highly annoyed as a function of exposure to general transportation noise (day-night average sound level in dBA Ldn). Least squares quadratic fit to 453 data points of 27 epidemiological community surveys. The third-order polynomial fitting function of 161 of the data points by Schultz (1978) is also shown (double line). (From Fidell, Barber, & Schultz, 1991).
Figure 2-7 Average hearing loss from aging for men and women (without the effects of occupational noise)
Figure 2-4
Noise Induced Permanent Threshold Shift

Figure 2.9
Average noise-induced permanent threshold shifts (NIPTS) (beyond presbycusis losses) expected as a function of the continuous A-weighted equivalent sound level
Figure 4-1
Criteria for indoor speech interference
(relaxed conversation at greater than 1 meter separation, 45 dB background in the absence of interfering noise)

Figure 4-2
Criteria for outdoor speech interference (normal voice at 2 meters)
Figure 4-3

Necessary voice levels as limited by ambient noise for selected distances between talker and listener for satisfactory face-to-face communication.

Figure 8-2

Summary of annoyance data from 12 surveys with data showing close agreement.
Figure 6-1
Probability of a noise induced sleep stage change.

Figure 6-2
Probability of a noise induced awakening
Appendix - F

DENVER NOISE SURVEY, 1995

Analysis of the Denver Noise Control Ordinance
Denver Department of Environmental Health
Environmental Protection Division
January 1997

Figure 9. Differences between all residential use, pure residential zoned R, and all residential not zoned...

Figure 9. Difference between all residential use, pure residential zoned R, and all residential not zoned...