Chapter 7

CONCLUSION AND FUTURE WORK
7.1 INTRODUCTION

In this proposed work we verified the experimental method for brain cancer segmenting methods and given the quantification measures, also we proposed the brain cancer discrimination approaches grounded on texture characteristics. In this last part, we discuss the analysis of the consequences of the proposed work in succeeding section and identify the possibility for forthcoming investigation in the successive fragment.

7.2 CONCLUSION ON MAIN RESULTS OF THE THESIS

In chapter 1 we have introduced different medical image modalities that are used today for the diagnosis of the various infections of the human. We utilized the MR images for the experimental work so in this section we have illustrated the details of MR scans, problem definition and objective of our study.

In the second chapter we provided the background knowledge of the existing segmentation techniques that are applied on the medical images. Also given the literature evaluation of the tumor classification techniques that are applied over brain MR scans, Breast MR scans.

In chapter three we have introduced some cancer segmenting and quantifying techniques based on statistical parameters like semiautomatic segmentation, Watershed transformation, and Levelset segmentation.

Chapter four focuses on projected method in which we used four different classes of brain cancers and extracted the GLCM based textural features of each class, and after training the FFNN, it gives 97.5% recognition rate.

Chapter five gives a proposed method in which we have used 5 different classes of brain cancers and extracted the LBP textural features of each class, and applied to four different neural networks out of which LM back-propagation gives the better classification rate of 96.00%
In chapter six we projected effective technique for brain cancer discrimination which contains 4 main steps. In the initial step we collected and return to normal the 5 different types of brain tumors. Then in the next step we have retrieved the *LBP* and *GLCM* texture features. Then we did feature selection using *PCA*. Finally features are merged and trained the FFNN using LM train algorithm. In the experimentation, it is perceived that when only *LBP* textural features are applied we got the recognition rate of 96.00% and when *GLCM* textural features are applied we got 97.00% but by merging *LBP* and *GLCM* we acquire better recognition rate of 99.00%. And last chapter seven discusses about conclusions, research outcomes and Forthcoming opportunity.

<table>
<thead>
<tr>
<th>Network</th>
<th>Training Algorithm</th>
<th>Feature Extraction Technique</th>
<th>Average Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>FFNN</td>
<td>LM</td>
<td>LBP+GLCM</td>
<td>99.0%</td>
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<tr>
<td></td>
<td>LM</td>
<td>GLCM</td>
<td>97.0%</td>
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<tr>
<td></td>
<td>LM</td>
<td>LBP</td>
<td>96.0%</td>
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<td>SCG</td>
<td>LBP</td>
<td>95.0%</td>
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<td>BFGS</td>
<td>LBP</td>
<td>86.0%</td>
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<td>GD</td>
<td>LBP</td>
<td>67.0%</td>
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### 7.3 POSSIBILITY FOR UPCOMING RESEARCH

The different ideas identified for additional research are given below.

1. In the projected method we used FFNN for the discrimination resolution; there is scope to use supplementary discrimination methods for the tumor discrimination.

2. In the projected technique WBA data is utilized, there is scope to use real time datasets.
3. Brain tumor discrimination and identification methods can be applied on DICOM images.

4. There is scope to merge discrimination and identification techniques together to increase the classification rate of tumor discrimination.

5. LBP feature retrieval technique along by the LBP patterns, Rotation-invariant LBP Patterns will be implemented for the better performance.

6. The features we used from MR scans can be merged with MRS, which gives supplementary information for the judgment purpose.

7. Further exercises are possible using higher dimensional existent domain records and the addition of these given measures to control and expectation difficulties.