ACKNOWLEDGEMENT

First I would like to pay gratitude to the one above all of us, the omnipresent God, for answering my prayers for giving me the strength to plod on despite my constitution wanting to give up and throw in the towel, thank you so much Dear Lord. This piece of work could have never been completed without the unseen showers of blessing of the Almighty God.

I have not traveled in a vacuum in this journey. There are some people who made this journey easier with words of encouragement and more intellectually satisfying by offering different places to look to expand my research. It is really a pleasure to thank such people who made this thesis possible. This dissertation would not have been possible without the guidance and the help of several individuals who in one way or another contributed and extended their valuable assistance in the preparation and completion of this study.

First and foremost, it is difficult to overstate my gratitude to my Ph.D. supervisor, Dr. (Mrs.) Maya Ingle, Professor and Senior System Analyst, School of Computer Science and Information Technology, DAVV presently Professor and Principal, Indore Institute of Computer Application on extra ordinary leave. With her enthusiasm, her inspiration, and her great efforts to explain things clearly and simply, helped to make the work enjoyable for me. Throughout my research and thesis-writing period, she provided encouragement, sound advice, good teaching, good company, good friend and always flooded with great ideas. I have been indebted to my supervisor, whose patience and kindness, as well as her academic experience, has been invaluable to me. Many times when I had been thinking to give up, she supported me like anything. She has been a charger for me so that whenever I got slow down, she has been accelerated my movements in the positive direction. I am deeply indebted to her for bearing me patiently and guiding me right from beginning of my research till taking this thesis in a shape. Despite of her very busy schedule, she had been always available for me whenever I sought any help from her. I should say I am fortunate to have outstanding supervisor like her. I owe so much to her that words fall short to describe. I would have been lost without her........

(iii)
I owe my sincere thanks to **Dr. A. K. Ramani**, Professor and Head, School of Computer Science and Information Technology, DAVV, for providing an excellent environment enriched with resources for pursuing my research. It is the fact that without his guidance, support and blessings, I could not have dreamt of completing my research.

I extend my thanks to **Dr. Rajkamal**, Professor and Head, School of Electronics, whose energy and expertise has been a constant encouragement and motivation for me. It is a pleasure to acknowledge the debt I owe to **Dr. Vrinda Tokekar**, **Dr. D. S. Bhilare**, **Dr. S. Tanwani**, and **Dr. Rajendra Singh** for time to time motivation, encouragement and blessings to complete this work.

I would be honored to extend my gratitude to the management of **Shail Group of Institutions** for believing in me and supporting me for my studies. I am indebted to my many student and colleagues of **MRSC**, **SVITS** and **IICA** for providing a stimulating and fun environment in which to learn and grow. I owe my sincere thanks to them to provide me support, encouragement and boosting me always to keep my confidence level high. I really cannot mention everybody, so many friends, relatives, neighbors; the fact that their names do not appear in this acknowledgement does not imply that they are forgotten. Believe me, I am really indebted to all of you from my heart for being a hidden support for me always. I am thankful to **Mrs. Padma Bonde**, **Dr. Ugrasen Suman**, **Dr. Shilpa Bhalerao**, for their cooperation and help at various stages of this work.

I am greatly thankful to **Uday Dada** and **Eesha** for patiently holding me during this period and stood behind me during the hard time. Especially when I have stolen their time while discussing the research issues with Madam for long time irrespective of day or night. I extend my deepest gratitude to both of them.

I owe my heartfelt gratitude to a very important person **Dr. Shubhangi Nirkhiwale** who treated my health problems during last few years to make me stand at the front of completion of my research.
I am thankful to my In-Laws for the support and encouragement they have provided me to complete my study in spite that I could not spare time for them. Most importantly, I express my deepest sense of gratitude to my father and mother without whom I would not have been standing. They sew the seeds of knowledge and learning in me and made my life. They both were constantly with me with their blessings, inspiring words, their never ending love and care during my research. Aai..., Baba... Thanks for everything........

I wish to thank my entire extended family for providing a loving environment for me. I am indebted to my sisters for their constant motivation, encouragement and care. Especially, my sister Mrs. Seema Sarkar, with whom I have shared disappointing and depressive movements of this journey; and she has always provided me her shoulder to lean and constantly supported me like anything.

I don't understand that how I should express my thanks to my dear husband Mr. Ashutosh Paithankar. Words are failing to appreciate him for his constant inspiration, motivation, love and unselfish support. I thank him from deepest of my heart for being with me calmly, facing my anxiety and keeping my moral high during the research and helping to solve technical problems. I would specially like to express deepest thanks to my dearest son Adwait who tremendously supported me with patience, keeping many of his demands aside. I have no words to really thank him for his emotional attachment, kindness and love letting me relaxed and comfortable during the studies. I feel deep sense of debt to my dear niece Mokshada who has always there to help, encourage and support me while pursuing the research. She has been constantly with me sharing household responsibilities along with her own studies. I am thankful for her love and care for me. Thanks to all of you.......

Lastly, I would like to owe my sincere thanks to everybody who have directly or indirectly helped for successful realization of thesis with expressing my apology that I could not mention them personally.

Kshama Paithankar
(vi)