ACKNOWLEDGEMENT

I am grateful to the Almighty God for blessing me with such professor and wonderful family, without whose support, encouragement and love, I would have ever reached this stage in my life. This dissertation would not have been possible without their help. I would like to take this opportunity to express my deep appreciation to all of them for their involvement and encouragement to finish this major work. The expression of my gratitude for them is beyond words. First and foremost, I wish to express my deepest gratitude to my supervisor Prof. S. D. Gore for inspiring me to select this topic, without whose guidance, support and also kindness the completion of this work would not have been made and taken this shape. I would like to express gratitude to head department computer science Prof. Vilas Kharat for his continuous support and motivation and help when needed through the elaboration of my ph.D thesis. Moreover, I would like to express the deepest gratitude to my mother and my sisters and my brothers for all the love and support they have given to me to make all this possible. I am also eternally grateful to them for their constant support throughout my academic work. Furthermore, of course, many loving of thanks and gratefulness go to my husband (Dr. Ali Ibrahim), whose encouragement and love has always supported me during my most productive period. His patience for many years in Iraq has enabled me to make this work better. Many thanks also go to my kids Adim and Sedim. They have kept me active and optimistic. Research funding plays an extremely important role in a graduate student’s life, and I was no different. I am indebted to Ministry of Higher Education & Scientific Research, Republic of Iraq, for giving me financial support to complete my postgraduate study. There is no doubt that this research could not have been completed in such a timely fashion without their support. Many thanks are to the authorities of the University of Babylon, Republic of Iraq. Last but not the least, I completed my post-graduate and this research in Pune University, Pune, India. Therefore, many thanks go to the authorities of University of Pune and to the people of India for their kindness and hospitality.

Asmaa S.A. AL-Zubaydi