# Dr. D.  S E N T H I L K U M A R

Plot No. 3, Door No. 20, Third Street,                                        No.25/13, Devaraya Nagar,
Lakshmi Nagar, Velachery, Chennai – 600 042                   Tiruchirappalli – 620 021
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## ACADEMIC PROFILE

- **Ph.D. Information and Communication Engineering (March 2017)**
  **College of Engineering Guindy Campus, Anna University.**

  **THESIS TITLE : Efficient Feature Selection and Classification Techniques for Multi-Label Medical Datasets**

- **Master of Engineering (April 2008) – 8.64 CGPA.** *(University Second Rank)*
  Specialization: Systems Engineering & Operations Research
  Department of Computer Science & Engineering,
  College of Engineering, Anna University.

- **M. Sc. Mathematics (April 2000) – 80%    I Class with Distinction.**
  Presidency College, Chennai.

## PROFESSIONAL EXPERIENCE

- **Asst. Professor (December 2009 – Till date)**

  Department of Computer Science and Engineering

  University College of Engineering (BIT Campus)

  Anna University, Tiruchirappalli

- **SENIOR LECTURER (June / 2005 – November 2009)**

  Meenakshi College of Engineering, Chennai.

- **LECTURER (June / 2002 – March / 2004)**

  Meenakshi Ammal Arts & Science College for Women, Uthiramerur.

## MEMBERSHIP IN PROFESSIONAL BODIES

1. Operational Research Society of India – Life Time Member (0977/D/12/ML)

2. Computer Society of India – Life Time Member (I1510308)

**AWARDS / RECOGNITION / MEDALS RECEIVED**

Professor T.R.Natesan Endowment Award & Silver Medal
(Instituted by Operational Research Society of India- Chennai Chapter) - 2009

**SPECIALIZATION SUBJECTS**

- Data Warehouse and Data Mining

- Database Management System

- Data Analytics

- Soft Computing

- Applied Statistics

- Operations Research

- Discrete Event System Simulation

- Supply Chain Management

**TOOLS AND LANGUAGES**

- Data Mining      : R-Language, Python, SPSS, Clementine, MARS, Weka, CART,

- Optimization   : Lindo, Lingo , TORA

- Simulation       : Extend

**WORKSHOP/ SEMINAR/ CONFERENCE/ SDP/FDP ORGANISED**

1. CSIR Sponsored Two Day NATIONAL SEMINAR ON "Computational Optimization and Simulation (COS'11)" APRIL 20-21, 2011.
2. One Day Workshop on BIO SIGNALS: DATA MINING PERSPECTIVE, 10th April 2013.
3. Faculty Development Training Programmed on CS2302- Computer Networks,30-05-2013 to 05-06-2013 - Sponsored by Centre for Faculty Development, Anna University, Chennai-600 025.
4. Faculty Development Program On "Paradigms of Computing" PC'13-2nd Dec'13 to 8th Dec'13 (7 Days) –TEQIP II Sponsored.
5. Workshop on "Quality Improvement in Technical Education" - 29.01.2014 –TEQIP II Sponsored.
6. Webinar on "Machine Learning using R", 6th July 2020.

**PUBLICATIONS – JOURNAL / CONFERENCE**

1) Presented a Paper in International Conference on Globalisation, Development, Public Policy and Management: Emerging Issues at Kannur University, Kerala on March 9th and 10th 2008.

2) George Washington, D., Senthil Kumar, D., & Rhymend Uthariaraj, V. (2008). A Decision Support System for Predicting Academic Performance of Candidates in Engineering Admissions using MARS. International Journal of Learning, 15(3). – Impact Factor -.02 (Scopus) – ISSN 14479494, 14479540 (2009-2013, 2015-ongoing)

3) Kumar, D. S., Sathyadevi, G., & Sivanesh, S. (2011). Decision support system for medical diagnosis using data mining. International Journal of Computer Science Issues, 8(3), 147-153. – Impact Factor -.242 (Scopus) –ISSN 16940784, 16940814 (2012)

4) Subathra, P., Baskar, A., & Kumar, D. S. (2012). Detecting digital image forgeries using re-sampling by automatic Region of Interest (ROI). ICTACT Journal on image and video processing, 2(4), 405-409.

5) D.Senthilkumar & Dayana M.Thomas," Decision Support System for Predicting Sales Performance", International Conference on Electrical Engineering and Computer Science (ICEECS), 17th March 2013 - 978-93-83060-02-3.

6) S.S.Sarmila, D.Senthilkumar and S.Naganandhini Sujatha, "Empirical Evaluation of Segmentation Algorithm for Pancreatic Cancer Images", International Conference on Computing, Communication and Information Technology (ICCCIT 2012), 27-29 June 2012 -978-93-82338-02-4.

7) A.Prabu & D.Senhikumar, "Urban health care monitoring based on ambulance location analysis using genetic algorithm", Fourth International Conference on Advances in Computer and Communication- IIST-2013.

8) Senthilkumar, D., & Paulraj, S. (2013). Diabetes disease diagnosis using multivariate adaptive regression splines. AGE, 768, 52, pp.3922-3929. (Scopus) – ISSN 09754024, 23198613 (2009-2016 (cancelled))

9) D.Senthilkumar, R.Amirthabala & S.Paulraj,"Best Arima Model to Forecast Oral Glucose Tolerance Test (OGTT) Value", "3rd International Conference on Science and Innovative Engineering", April 4th and 5th, Jawahar Engineering College, Chennai.

10) D.Senthilkumar & A.Priyadharshini, "Cardiovascular Abnormalities and Ischemic Detection Based on Heart Beat Classification", Second International Conference on Recent Trends in Computer Science & Engineering (ICRTCSE 2014, Apollo Engineering College, Chennai.

11) Senthilkumar, D., Sheelarani, N., & Paulraj, S. (2015). Classification of multi-dimensional thyroid dataset using data mining techniques: comparison study. Advances in Natural and Applied Sciences, 9(6 SE), 24-29. (Scopus) (2009-2012 (cancelled))

12) Senthilkumar, D., & Paulraj, S. (2015). Prediction of low birth weight infants and its risk factors using data mining techniques. In Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management (pp. 186-194).

13) Devaraj, S., & Paulraj, S. (2015). An efficient feature subset selection algorithm for classification of multidimensional dataset. The Scientific World Journal, 2015.. (Scopus) – ISSN 19950772, 19981090 (2000-ongoing)

14) D.Senthilkumar, N.Sheelarani, R.Amirthabala," Prediction of Oral Glucose Tolerance Test (OGTT) value using Hybrid Model," International Journal of Applied Engineering Research, ISSN 0973-4562 Vol.10 No.72 (2015). (Scopus) (2011-ongoing)

15) V.Rajeswari and D.Senthil Kumar," Privacy Preservation in Health Care Monitoring System," International Journal of Applied Engineering Research, ISSN 0973-4562 Vol. 10 No.41 (2015) (Scopus)- ISSN 0973-4562 (2011-ongoing)

16) D.Senthil Kumar and S.Sukanya, "Feature Selection using Multivariate Adaptive Regression Splines," International Conference on Engineering Systems and Designs (ESD2016)- Organized by Avvaiyar College of Engineering & Technology for Women, Puducherry in Association with International Association of Advances in Engineering and Technology (IAAET), ISBN:978-81-932252-7-1.

17) D. Senthilkumar and S. Paulraj, 2016. Ensemble Deep Learning for Multi Label Classification in the Design of Clinical Decision Support System. Asian Journal of Information Technology, Vol.15, no. 15: 2632-2637. DOI: 10.3923/ajit.2016.2632.2637 (Scopus) – ISSN 16823915, 19935994 (Upto 2016).

18) D. Senthilkumar, A. K. Reshmy, M. G. Kavitha , 2018, Non-Linear Machine Learning Techniques for Multi-Label Image Data Classification, Applied Mathematics & Information Sciences, An International Journal Volume 12, No.6 , pp.1139-1145, doi:10.18576/amis/120608

19) Noornisha Mubarak Ali and D.Senthilkumar , 2019, "Efficient Feature Selection Techniques for Multi-Target Dataset", International Conference on Envisioning the Future for Knowledge Engineering, In association with Computer Society of India (CSI) and Bangalore University, 08-09, March 2019, Organized by Department of Computer Science and Application, Christ Academy (Institute for Advanced Studies).

20) Senthilkumar D., Akshayaa C., George Washington D. (2021) Efficient Deep Learning Approach for Multi-label Semantic Scene Classification. In: Chen JZ., Tavares J., Shakya S., Iliyasu A. (eds) Image Processing and Capsule Networks. ICIPCN 2020. Advances in Intelligent Systems and Computing, vol 1200, pp 397-410. Springer, Cham. http://doi-org-443.webvpn.fjmu.edu.cn/10.1007/978-3-030-51859-2_37. (UGC Approved / Scopus Indexed)

**CONFERENCES/WORKSHOPS/SEMINAR/ SHORT TERM REFRESHER COURSE ATTENDED**

1. One-day workshop on "Recent Trends in Applied Mathematics", 3rd November 2006, Jerusalem College of Engineering.

2. Participated in One-day workshop on "Teaching Methodologies" organized by the Department of English, Anna University of Technology, Tiruchirappalli on 5th March 2011.

3. One-day workshop on "Teaching Skills and Smart Class Room Tools" at Centre for Faculty Development, Anna University, Chennai 7th January 2013.

4. Workshop on Web Service (WWS'13), 03.01.2013 to 04.01.2013, University College of Engineering, BIT Campus, Tiruchirappalli.

5. Participated in the National Seminar on Intellectual Property Rights and Biotechnology (NSIPRB-2013) -22nd February 2013, Department of Biotechnology, Anna University, BIT Campus, Tiruchirappalli – 620 024.

6. Presented a paper titled "Decision Support System for Predicting Sales Performance" International Conference on Electrical Engineering and Computer Science (ICEECS), 17th March 2013, Inter science Research Network (IRNet), Coimbatore.

7. Workshop on" Quality Initiatives in Technical & Higher Educational Institutions (in Compliance with NBA & NAAC Accreditation)- 22nd to 24th October 2013, Quality & Productivity Division, Engineering Staff College of India Autonomous Organ of the Institution of Engineers (India), Hyderabad, AP, India.

8. One-day workshop on "Quality Improvement Cell", 3rd December 2013, Centre for Faculty Development, Anna University, Chennai – 600 025.

9. Faculty Development Programme on "Smart Teaching for the NET Generation" (Basic and Advanced Pedagogy), 9.12.2013 to 23.12.2013, Organized by National Institute of Technical Teachers Training & Research, Chennai, Government of India, MHRD.

10. TEQIP II & CSI SIGDATA Sponsored One Week Workshop on "Databases - Learning through Activity, June 23rd – 27th, 2014, Department of Computer Science and Engineering, Thiagarajar College of Engineering, Madurai, Tamilnadu.

11. Presented Paper titled "Best Arima Model to Forecast Oral Glucose Tolerance Test (OGTT) Value", 3rd International Conference on Science and Innovative Engineering, April 4th and 5th at Jawahar engineering college, Chennai.

12. Presented Paper titled, "Cardiovascular Abnormalities and Ischemic Detection Based on Heart Beat Classification", Second International Conference on Recent Trends in Computer Science & Engineering (ICRTCSE 2014, Apollo Engineering College, Chennai.

13. Presented a paper titled "Health Care Decision Making Using Fuzzy Regression for Diabetes Disease Management" in the International Conference on Intelligent Information Technologies(ICIIT), 11th to 13th December 2014 at the Department of Information Science and Technology, College of Engineering Guindy, Anna University, Chennai.

14. Participated in the SPFU-TEQIP II Sponsored workshop on "Implementation of Outcome Based Education" from 21st to 22nd April 2015, organized by Thiagarajar College of Engineering, Madurai.

15. Foundation Skills in Integrated Product Development (FSIPD) Train-The-Trainer Program from 09-07-2015 to 13-07-2015 Organized by Centre for Faculty Development, Anna University, Chennai in collaboration with IT-ITes Sector Skills Council NASSCOM.

16. TEQIP- II Sponsored course on "Faculty Development Programme" Organized by Bharathidasan Institute of Technology, Anna University, Tiruchirappalli – 620 024 in association with Confederation of Indian Industry(CII) on 1st March 2016.

17. TEQIP- II Sponsored Faculty Development Programme on Top Tech Trends (T3) – Driving the future of Information Technology (DFIT), 30th June to 13th July 2016, organized by the Department of Computer Science and Engineering, Bharathidasan Institute of Technology, Anna University (BIT Campus) Tiruchirappalli.

18. National Level Workshop on "Optimisation and Simulation in Research" on 16.03.2017 organized by the Department of Industrial Engineering, Anna University, Chennai -25.

19. Centre for Faculty Development, Anna University, Chennai Sponsored, Two Week Faculty Development Training Programme on CS6660 – Compiler Design, 3rd to 15th December - 2018, organized by the Department of Computer Science and Engineering, University College of Engineering (BIT Campus) - Anna University, Tiruchirappalli.

20. NPTEL Course on Data Mining, February to April 2020 (8 Week Course).

21. Webinar on Machine Learning with Python, 22nd to 27th June 2020, Organized by the Department of Computer Science and Engineering, Annamalai University.

22. AICTE Sponsored Six Days Online STTP on Tableau during 27th July to 01st September 2020, Organized by Department of Computer Science and Engineering, IFET College of Engineering (An Autonomous Institution), Villupuram.

23. Train- the-Trainers program on "PYTHON SKILLS" during 28th & 29th August, 2020, conducted by Centre for University – Industry Collaboration (CUIC), Anna University Chennai.


**KEY NOTE SPEAKER / JUDGE**

1. **"Statistical methods, time series analysis, and statistics tools and its applications"**, CSIR Sponsored Two Day NATIONAL SEMINAR ON "Computational Optimization and Simulation (COS'11)" APRIL 20-21, 2011.

2. **"Data Embedding Security Schemes"**, DRDO Sponsored Seminar on "Steganography Techniques for Secured Data Transmission in Military Intelligence"- 14.12.2012 & 15.12.2012, Kongu Engineering College.

3. **"Optimization Techniques in Computing"** - Faculty Development Program On "Paradigms of Computing" PC'13-2nd Dec'13 to 8th Dec'13 (7 Days) –TEQIP II Sponsored.

4. **"Quality Improvement Through Technology in Technical Education"** - Workshop on "Quality Improvement in Technical Education" - 29.01.2014 –TEQIP II Sponsored.

5. Judge for "A state level Science Exhibition for school student" on 06th and 07th September, 2014 organized by the Department of Science & Technology, Tamilnadu and Department of Science & Technology, New Delhi, at Shivani College of Engineering & Technology campus, Tiruchirappalli – 9.

6. National Level Technical Conference - **Judge for paper presentation** " Recent Trends in Computer Science Engineering and Technology" on 27/08/2014 at Sree Sastha College of Engineering, Chennai-600 123.

7. **"Cloud Computing"** - One Day State Level Seminar on " Recent Trends in IT" on 20/01/2017 as Key Note Speaker organized by Department of Computer Science at Bharathidasan University Constituent Arts and Science College (CO-ED), Navalurkuttapattu, Tiruchirappalli.

8. **"Data Preprocessing "**Faculty Development Programme on "IT6702 – Data Warehousing and Data mining" 04-12-2017, K. Ramakrishnan College of Technology, Tiruchirappalli.

9. **Guest Lecture** on "**RECENT TRENDS in COMPUTER SCIENCE and ENGINEERING**" on 15$^{th}$ February 2018 at Department of CSE & IT, Sri Bharathi Engineering College for Women, Kaikkurichi, Pudukkottai.

10. **Chief Guest**, Inauguration of Department Association, Mastro CSE'18 on 01/08/2018, Department of Computer Science and Engineering at K.Ramakrihsnan College of Technology, Samayapuram, Tiruchirappalli.

11. **Chief Guest**, 7$^{th}$ National Conference on " Recent Trends in Computing" on 20/03/2019, organized by Department of Computer Science and Engineering and Information Technology, MAM College of Engineering, Siruganur, Tiruchirappalli.

12. **Jury for the Paper Presentation,** National Level Technical Symposium – "TECHGYAN 2020" on 18/02/2020, organized by Sri Ramakrishna College of Engineering, Perambalur.

13. **Speaker,** FDP on Trending Technologies, Department of Computer Applications, BS Abdur Rahman Crescent Institute of Science and Technology, 14$^{th}$ May 2020 to 16$^{th}$ May 2020.

14. **Speaker,** One Week Online Faculty Development Programme on the Topic" Machine Learning and Data Science for Engineering Applications" 5$^{th}$ June 2020 - 10$^{th}$ June 2020 Organized by the Department of CSE and IT of Shadan College of Engineering and Technology, Hyderabad.

15. **Speaker, Webinar on "Machine Learning using R"** Organized by the Department of Computer Science and Engineering, University College of Engineering (BIT Campus), Anna University, Tiruchirappalli on 06/07/2020.

16. **Judge – Smart India Hackathon 2020 (Software Edition) Grand Finale 1$^{st}$ to 3$^{rd}$ August 2020**

### RESEARCH GUIDANCE:   POST GRADUATE PROJECT

| S.No. | Degree | Name of the Candidate | Register Number | Title of the Project |
|-------|--------|----------------------|-----------------|----------------------|
| 1 | M.E.SE | DHIVYA.P | 1110537007 | Decision support system for stock market using mars |
| 2 | M.E.CSE | SARMILA.S.S | 1109901543 | Medical image segmentation using fuzzy-c-means Algorithm and active control model |

| 3 | M.E.(MBCBS) | SUBATHRA.P | 1109901548 | Digital Image Forgery Detection |
|---|---|---|---|---|
| 4 | M.E.SE | DAYANA M.THOMAS | 810011421005 | Mining online reviews for facilitating Business improvement |
| 5 | M.E.CSE | PRABU.A | 01110901044 | Urban health care monitoring based on Ambulance location analysis using genetic Algorithm |
| 6 | M.E.SE | AMIRTHABALA R | 810012421003 | Decision support using data mining in Heath care sector |
| 7 | M.E.CSE | PRIYADHARSHINI.A | 810012405017 | Cardiovascular abnormalities and i Schemic detection based on heartbeat Classification |
| 8 | M.E.(MBCBS) | IMMACULATE REXI JENIFER.P | 810011993021 | Graph based data partitioning with Feature identification scheme |
| 9 | M.E.(MBCBS) | AYYANA PRABU.J | 810011993011 | Neural network based face recognition Using gabor and local binary pattern |
| 10 | M.E.MPC | SHEELARANI.N | 810013405019 | Design a decision making system for Multi-label dimensional health care Dataset |
| 11 | M.E.CSE | RAJESWARI.V | 810013435013 | Privacy preserving in healthcare Monitoring system |
| 12 | M.E.MPC | S.KALA | 810014435011 | Reliable and secure multi-label medical data Classification |
| 13 | M.E.MPC | S.SUKANYA | 810014435022 | Multi-dimensional medical data classification using Ensemble based classifier |
| 14 | M.E.CSE (PT) | K.MUTHUKARUPAEE | | Privacy preserving framework for multi-label Data mining |
| 15 | M.E.MPC | S.KALA | 810014435011 | A study on feature selection techniques for Multi -label medical classification |
| 16 | M.E.MPC | S.SUKANYA | 810014435022 | Ensemble based multi-label medical data Classification using hybrid data mining techniques |
| 17 | M.E.CSE | B. KRISHNA KUMARI | 810015405008 | User based access and authorization social Recommender system |
| 18 | M.E.CSE | M.NOORUNNISHA | 810017405007 | Efficient Feature Selection Techniques for Multi - Target Dataset |
| 19 | M.E.CSE | C.AKSHAYAA | 810018405001 | Efficient Classification Technique for Multi label Scene Dataset |

**JOURNAL / CONFERENCE CITATIONS**

| | | |
|---|---|---|
| Kumar, D. S., Sathyadevi, G., & Sivanesh, S. (2011). Decision support system for medical diagnosis using data mining. *International Journal of Computer Science Issues*, *8*(3), 147-153 | 80 | 2011 |
| Senthilkumar, D., & Paulraj, S. (2013). Diabetes Disease Diagnosis Using Multivariate Adaptive Regression Splines. *AGE*, *768*, 52 | 8 | 2013 |
| Devaraj, S., & Paulraj, S. (2015). An Efficient Feature Subset Selection Algorithm for Classification of Multidimensional Dataset. *The Scientific World Journal*, *2015*The Scientific World Journal 2015, 1-9 | 9 | 2015 |
| Subathra, P., Baskar, A., & Kumar, D. S. (2012). Detecting digital image forgeries using re-sampling by automatic Region of Interest (ROI). *ICTACT Journal on image and video processing*, *2*(4), 405-409 | 3 | 2012 |
| Senthilkumar, D., Sheelarani, N., & Paulraj, S. (2015). Classification of multi-dimensional thyroid dataset using data mining techniques: comparison study. *Advances in Natural and Applied Sciences*, *9*(6 SE), 24-29 | 6 | 2015 |
| Senthilkumar, D., & Paulraj, S. (2015). Prediction of low birth weight infants and its risk factors using data mining techniques. In *Proceedings of the 2015 International Conference on Industrial Engineering and Operations Management* (pp. 186-194) | 14 | 2015 |
| S Sukanya & D. Senthilkumar (2016) Feature selection using multivariate adaptive regression splines. *International Journal of Research and Reviews in Applied Sciences and Engineering (IJRRASE)* Vol 8. No.1 – 2016 Pp.17-24, | 7 | 2016 |

**REVIEWER FOR THE FOLLOWING JOURNALS**

- British Journal of Applied Science & Technology
- Journal of Scientific Research and Reports
- Journal of Basic and Applied Research international
- British Journal of Mathematics & Computer Science
- Asian Journal of Mathematics and Computer Research
- Journal of Big Data – Springer Open
- Advances in Research
- Applied Clinical Informatics
- International Journal of Information Technology & Decision Making
- Asian Journal of Research in Computer Science

- Computational Intelligence An International Journal, Wiley Periodicals
- Journal of Intelligent & Fuzzy Systems
- Advances in Science, Technology and Engineering Systems Journal (ASTESJ)

**CONSULTANCY WORK**

Design, Implementation and Testing of LAN & Wi-Fi Technical Committee for Tamil Nadu National Law School, Srirangam Taluk, Tiruchirappalli-620009, Tamil Nadu, India.

**ACADEMIC AND ADMINISTRATIVE RESPONSIBILITIES**
1. PG project coordinator – July 2012 – May 2013 (UG – IT)
2. PG – Class Coordinator
3. NBA e-SAR Submission Coordinator for Information Technology
4. TNEA 2014 & 2015 – Coordinator (Sales of Application Forms)
5. TANCET-2014- Coordinator- In Person Registration Process
6. TANCET 2014 Examination – Additional Local Coordinator for Tiruchirappalli City
7. NBA Programme Coordinator for Computer Science and Engineering
8. TWAD Board – AE Examination (14.08.2016) – Committee Member
9. TNEB -TANGEDCO – Examination (27.08.2016 and 28.08.2016) – Additional Chief Superintendent
10. Mentor - Team Tech Freakers, Smart India Hackathon 2017
11. Graduation Day – Coordinator (Live Streaming, Online Registration and Publicity)
12. Stock Verification Officer
13. TNPSC- Exam Coordinator
14. Guest House - Coordinator
15. TNEB -TANGEDCO – Examination (30.12.2018) – Additional Chief Superintendent
16. Coordinator - Development of Web Application for Grievance Redressal Cell
17. Member -  Grievance Redressal Cell
18. Coordinator - Technical Support – NBA process (05/01/2018 to 07/01/2018)

| Sl.No. | Designation | Period | |
| --- | --- | --- | --- |
| | | From | To |
| 1 | Coordinator -  Student Information Processing System | 25/07/2018 | 30/08/2018 |
| 2 | Coordinator - Video Conferencing System | 23/09/2016 | 30/12/2018 |
| 3 | Coordinator – Quality Improvement Cell | 29/01/2014 | 02/01/2018 |
| 4 | Programme Coordinator  - CSE | 09/04/2015 | 30/12/2016 |
| 5 | Coordinator – Exam Cell (University Examinations) | November – December 2010 April – May 2011 November – December 2011 January – February 2012 | |
| 6 | Coordinator – Time Table | May 2010 | December 2014 |

| | | | |
|---|---|---|---|
| 1 | Additional Coordinator - Placement | 18/09/2019 | Till Date |
| 2 | Coordinator - INTERNSHALA | 05/08/2019 | Till Date |
| 3 | Coordinator  - Guest House | 19/02/2018 | Till Date |
| 4 | Coordinator - EDUSAT | 18/12/2012 | Till Date |
| 5 | Coordinator Department of Computer Science and Engineering | 19/01/2020 | Till Date |