**WEEKLY PROGRESS REPORT**

**(for students working from home)**

**M.Tech. 2nd year /Ph.D , Session:2021-2022**

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| **Course:-M Tech** | **Branch & Year:-Information Security 2nd year** |
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| **Thesis Title:-Software Component Identification and Composition using clustering** | |

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| **Month** | **Week** | **Work done (description)** | **Remarks of the Supervisor** |
|  | **I** | **Read 12 papers related to clustering techniques used in identification and composition of software components to get a general idea about previous related works and techniques used.**  **The 2 base papers for our thesis uses formal methods for constructing a software component library. Software components are specified using predicate logic. The specification corresponds to specifying abstract data type and a set of methods that operate on it. Each method is specified by interface ,type declarations , preconditions and post conditions. These components are then made to classify set of components subsumption test algorithm.**  **After getting lower level hierarchy of software components , higher level hierarchy is made using clustering algorithmn. The clustering is done using similarity between components.**  **The result is a hierarchy of software components that make it easier to search and reuse.**  **Some other component identification methods studied were clustering using high cohesion and low coupling strategy.**  **Another paper suggested combing clustering and genetic algorithms for component identification. The conclusion found by merging both the methods was that it has better performance in medium scale systems but not good in high scale and small scale systems. The paper uses mapping of object models and components to specify a component.**  **Another paper used use cases to extract features such as number of actors ,entity classes ,control classes etc. and compared the number of components formed from different types of clustering algorithms such as hierarchical , square error based, RB,RBR ,graph based , fuzzy and neural network based. The number of components formed were matched with an expert and the error percentage was calculated for every method of clustering.**  **Some papers focussed on component selection based on certain business requirements. Components were selected using genetic algorithm techniques and also traditional search based techniques. In evolutionary techniques the requirements are represented as chromosomes and values of ith gene represents component satisfying ith requirement.** |  |
| **II** |  |  |
| **III** |  |  |
| **IV** |  |  |

Progress of the student is Satisfactory / Not satisfactory

**(Thesis Supervisor)**

**Name**:-Prof. D. K. Yadav

**Department:CSED**

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| **Forwarded by: Convener-DMPC / DDPC** | **Head of Department** |
| **Dated:** | **Dated** |