**TITLE:** Software project scheduling problem in the context of search-based software engineering

# Introduction

Search Based Software Engineering (SBSE) is the name given to a body of work in which Search Based Optimisation is applied to Software Engineering. The aim of Search Based Software Engineering (SBSE) research is to move software engineering problems from human-based search to machine-based search, using a variety of techniques from the metaheuristic search, operations research and evolutionary computation paradigms.

# Techniques & its Related Challenges

- Some of the common algorithms used for this purpose are:
  a) Random Search
  b) Hill Climbing
  c) Simulated Annealing
  d) Genetic Algorithm

## Challenges:

- The selection of the solution representation and the right fitness function.
- Changing the optimization algorithm may not necessarily change the output to better.
- It is the coverage criteria and the finest function that lead to better results.

# Research Findings

According to our research we have found that at present the field of search-based software engineering is developing rapidly and has contributed the most efficient ways to solve the software project scheduling algorithms. This is because SBSE uses metaheuristic search techniques, such as genetic algorithm, simulated annealing and tabun search. We have also studied these algorithms and have discovered their properties and have also came across more advanced techniques which we are going to research upon in future.

# Contributions

**Aviral** - Genetic Algorithm, Random Search

**Arun** - Simulated Annealing

**Gokul** - Hill Climbing

# Theoretical Approach

Our main approach is to do a deep study of search-base software engineering (SBSE) along with various techniques, methods and algorithms used in it. We will also research and try to find more challenges faced in SBSE. **TOOL** that we will use MOEA Framework.

# Base Paper and Reference Papers


- http://www0.cs.ucl.ac.uk/staff/mharman/laser.pdf
- https://www.researchgate.net/publication/228671024_Search_Based_Software_Engineering_A_Comprehensive_Analysis_and_Review_of_Trends_Techniques_and_Applications
- https://dl.acm.org/doi/10.1145/3404555.3404588
- https://www.researchgate.net/publication/325250941_A_survey_on_the_Software_Project_Scheduling_Problem
- https://tarjomefa.com/wp-content/uploads/2018/04/187-English-TarjomeFa.pdf