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# Multi-objective Task Scheduling in Heterogeneous Cloud Computing Environment

FYP Proposal

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## Problem Statement

Multi-objective task scheduling is main issue in heterogeneous cloud computing environment because cloud performance majorly depends on it. Its performance also directs impact on customer's satisfaction. So, this problem should be resolved more accurately to improve its performance.

## Introduction

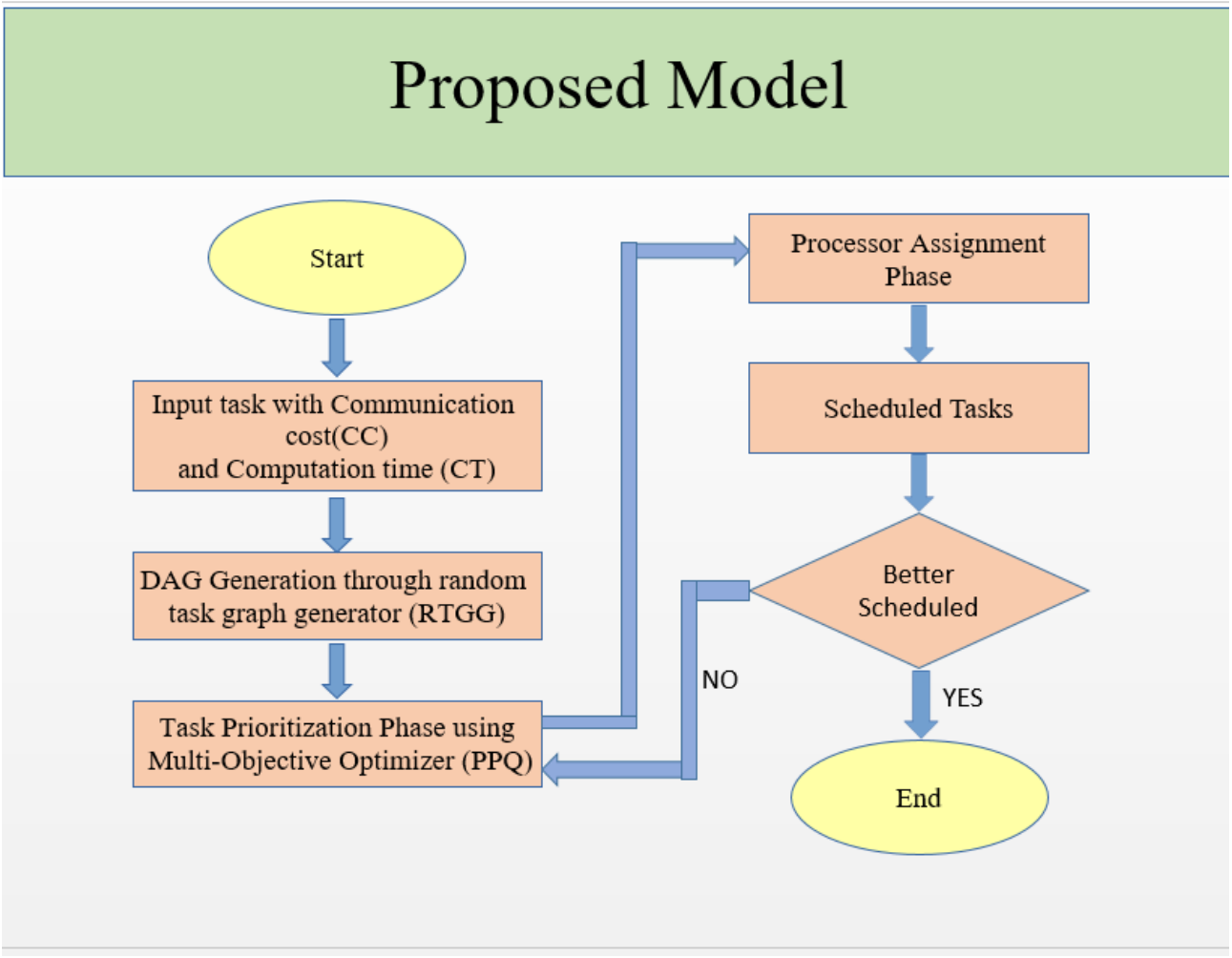
Scheduling of tasks in a heterogeneous cloud computing environment is a nonlinear multi-objective NP-hard problem which is playing an important role in optimization of cloud computing. We will develop a comprehensive multi-objective algorithm based on PPEFT (Parental Prioritization Earliest Finish Time) algorithm for task scheduling to minimize makespan, maximizing the resource utilization and provide dynamic task scheduling.

## Project Objectives

The proposed algorithm will:

- Minimize makespan.
- Maximize the resource utilization.
- Dynamic task scheduling.

## Methodology




- We will extend the PPEFT (Parental Prioritization Earliest Finish Time) algorithm to resolve the issues like makespan and resource utilization in heterogeneous cloud computing environment.
- The algorithm will be tested on various benchmark scientific workflows. For this purpose we will use standard real-world workflow applications (Epigenomics and Montage).

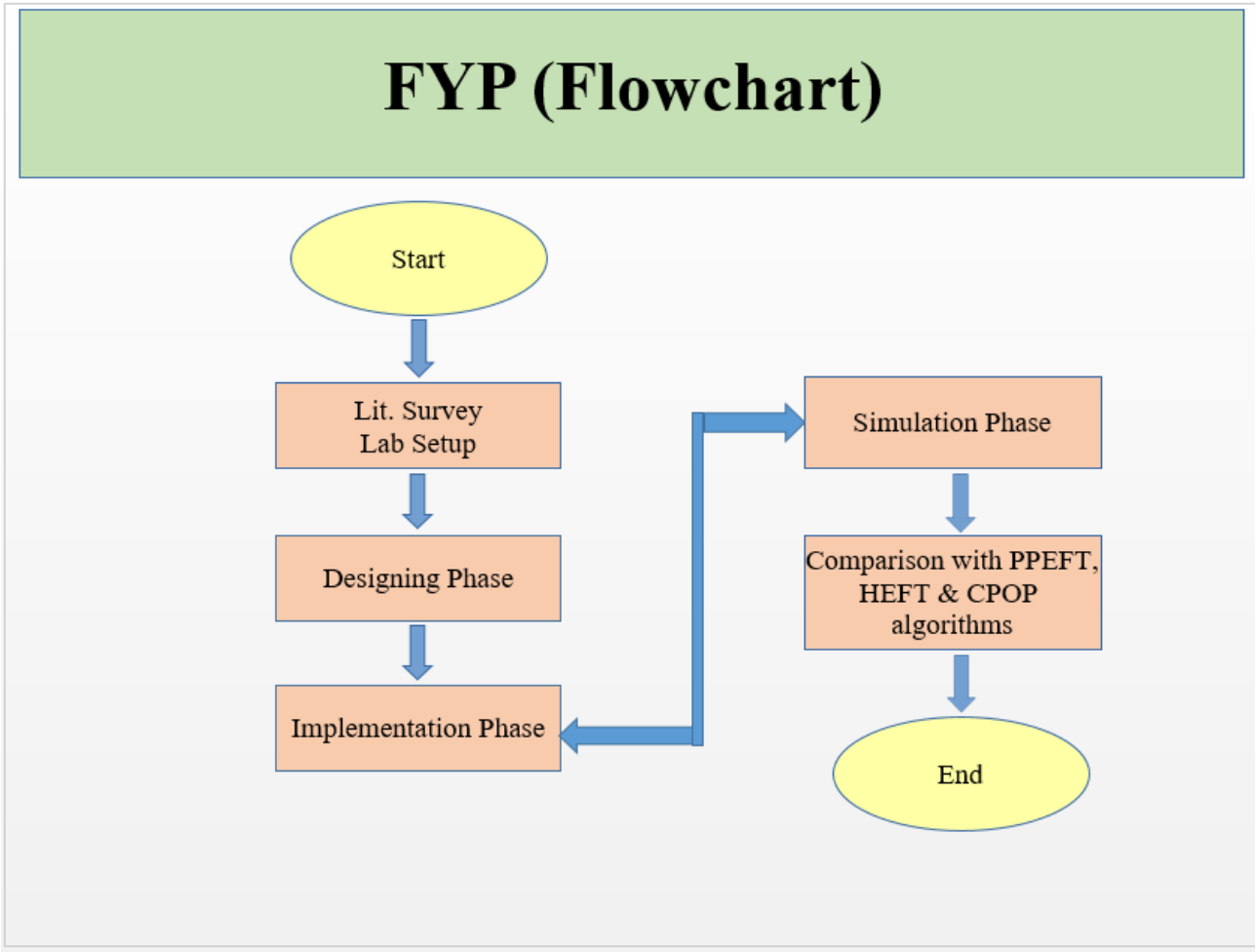
**Tools:**

- To test the performance of task scheduling algorithms, simulation environment will run on CloudSim 3.0.5 with graphs generated through python library.

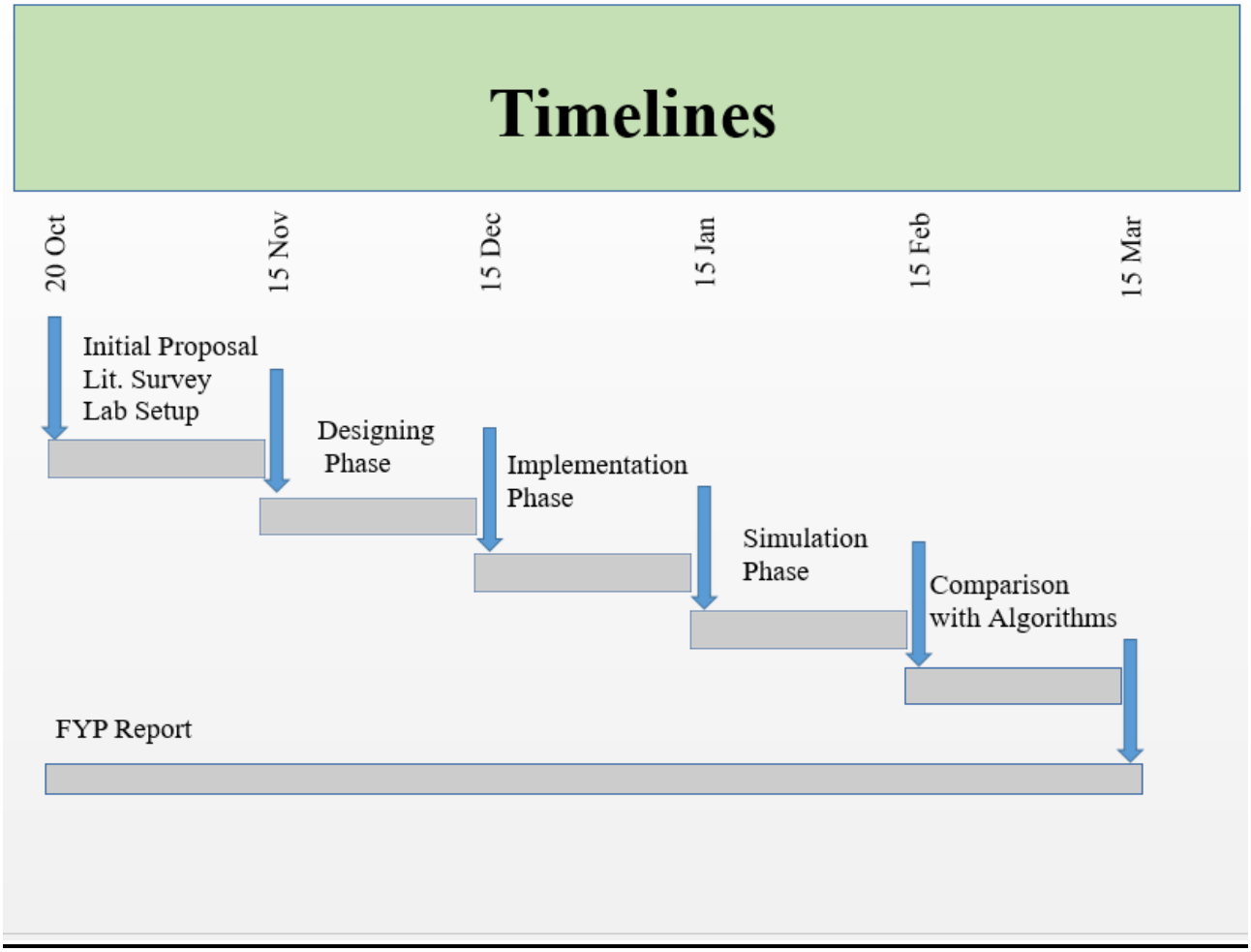
## Outcomes

As the result of this project we will get an algorithm which will performs remarkably well in terms of makespan and resource utilization while maintaining the other parameters within considerable limits.

## FYP Flow Chart



## Timelines


Timelines
20 Oct
15 Nov
15 Dec
15 Jan
15 Feb
15 Mar
Initial Proposal
Lit. Survey
Lab Setup
Designing
Phase
Implementation
Phase
Simulation
Phase
Comparison
with Algorithms
FYP Report

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