

# Multi Constraint Scheduling Problem

## Description

Scheduling problems are a class of problems that require the allocation of resources for a certain span of time while satisfying certain constraints. Multi Constraint Scheduling Problems fall under the class of NP-complete or NP-hard problem, owing to the constraints they put on the resources and the limited availability of time. This class of problems is applicable in a large domain such as processor scheduling, bandwidth scheduling, aircraft and gate scheduling, repair crew scheduling, traffic light scheduling, time table scheduling to name a few.

All scheduling problems have certain important aspects :

- Allocation of Resources
- Allocation of Time Slots
- Constraints
- Optimisation

The task is to provide the mapping between the resources to time slots without violating any of the imposed constraints.

## Objectives

### 1. To develop a system to solve an instance of a Multi Constraint Scheduling Problem:

To develop a system employing suitable algorithms and techniques to find solutions to a particular example of a multi constraint scheduling problem.

### 2. Tools for automation:

By the end of the project we intend to create an automated system that is able to solve all variations of the problem using the developed system.

## Outcomes

### 1. Reduce human effort and time:

Solving the scheduling problem manually requires a significant amount of human effort and time. The developed system would be able to solve this problem in a fraction of the time with minimal human effort.

## Team

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