

**HADHRAMOUT UNIVERSITY**

**COLLEGE OF ENGINEERING & PETROLEUM**

**COMPUTER ENGINEERING DEPARTMENT**

**University lecture timetable scheduling**

**A FINAL PROJECT SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF BACHELOR OF ENGINEERING IN COMPUTER ENGINEERING**

**By**

**Abdulrahman Ahmed Bahyan**

**Halah Marie Bin Helabi**

**Hasan Mohammed Al-Hamed**

**Mareai Faozi Bin Taleb**

**Supervised By**

**Dr. Makarem Bamatraf**

**ALMUKALLA**

**DESAMBER 2022**

# **Chapter 1: Project Introduction**

## Introduction

Today we are progressing in science and technology and everything is moving towards automation a large portion of this technology is developed to solve tasks that take a lot of time to be done manually. These tasks are real-life problems, which are classified into two categories. The first category is the deterministic problems which are the problems with no randomness, meaning that all data to find the best solution are present so you can determine the solution with no difficulties. The second category is the **non-deterministic** problems where there is the factor of randomness so finding a solution will be a more complex task also where there are too many possibilities to find a solution. This is because of the large pool of spaces for solutions, and handling such large spaces concerning certain circumstances or constraints will be extremely difficult. Here comes the automation part where you can use the machine to do large tasks and repeat them thousands of times so the near-optimal solution can be obtained.

## Problem statement

In each semester, universities create their lecture schedules. This process is done manually and it is not easy due to the many aspects that must be considered and taken into accounts, such as lectures, appropriate halls, time of lectures, and others. There is a possibility to improve these schedules and come up with more satisfactory results, but it takes effort and a long time that exceeds the ability of the average person. Here the problem lies in creating schedules that are free of conflicts and adequately meet the requirements of faculty members and students.

## Objectives

The objectives of this project are to create a program that can:

* Generate university lectures schedules that have no conflicts and satisfy users' requirements.
* Optimize the obtained schedules.
* Reducing the time and effort taken to create the schedules by transforming the manual task to an automated one.

## Project scope

This project will be implemented at Hadhramout university, but also other universities can benefit from the project by adapting it for their use. Firstly, the project will be tested in the college of engineering and petroleum which allow the departments to create their semester schedule as they need.