**Maintenance Project Phase 1**

|  |  |
| --- | --- |
| **Youssuf El Tahan** | **20206117** |
| **Muhammed Ashraf** | **20206065** |
| **Ahmed Hamdy** | **20206003** |
| **Abdelrahman Mansour** | **20206034** |

**Bugs Report Link on Bugzilla**

<https://bugzilla-dev.allizom.org/buglist.cgi?bug_status=UNCONFIRMED&bug_status=NEW&bug_status=ASSIGNED&bug_status=REOPENED&emailassigned_to1=1&emailreporter1=1&emailtype1=exact&email1=youssufeltahan%40gmail.com&field0-0-0=bug_status&type0-0-0=notequals&value0-0-0=UNCONFIRMED&field0-0-1=reporter&type0-0-1=equals&value0-0-1=youssufeltahan%40gmail.com&list_id=15196711>

**Project Description**

Comprehensive University Timetabling System

UniTime is a comprehensive educational scheduling system that supports developing course and exam timetables, managing changes to these timetables,

sharing rooms with other events, and scheduling students to individual classes.

Ex:- Course timetabling management: objective behind course timetabling is to place each course at a time which does not conflict with the time assigned to any other course required by the students attending it.

This is relatively easy if there are only a few courses taken in combination with the course of interest.

Ex:- Examination Timetabling : UniTime builds a complete exam schedule each term that minimizes the number of conflicting exam placements for all students.

It can also minimize the number of students with more than a given number of exams in a day.This is particularly useful for colleges and universities that have a large number of courses that do not fit well into mapped exam timetables.

also UniTime is a distributed system that allows multiple university schedule managers to coordinate efforts to build and modify a schedule that meets their organizational needs while allowing for minimization of student course conflicts.

Ex:- Student Scheduling: The student scheduling process is essentially that available time required by each student to the available class spaces so that all of the students educational requirements are met.

The most direct approach to making sure every student is able to attend all of their needed courses is to construct the class timetable after collecting all student course requirements.

finally, UniTime can be used to construct such a demand-based timetable and optimize the number of students who receive the needed courses.

UniTime is able to determine the expected need for individual course sections. If the expected need for an individual class section is greater than the number of student spaces available,

these spaces will be held for students who require that class to build a conflict free schedule.

The technique we used: Top-Down approach,This approach can be applied to university timetabling by first understanding the high-level requirements of the system and then gradually breaking down the problem into smaller pieces.

we must knows what components must be present , Knows what these components consist of

Components that present in university timetabling :- The scheduling algorithm , The database that stores course and students information

Components Consist of :- The scheduling algorithm might require functions that represent courses , rooms , TAs , Drs and scheduling constraints.

The database component might require functions that allow for the storage and retrieval of course and room and students information.

The reason that we use that technique is: The Unitime timetabling project is a complex project that involves many different components, algorithms, and data structures. When working with such a large and complex codebase, it can be difficult to understand the code and how it all fits together ,

This is where a top-down approach to code comprehension can be useful.