**CPSC - 481 Assignment - 1**

**Team Leader:** Trenton Jansen (CWID: 899705313)

* **Proficient Programming Language:** C++/Java
* **Possible Responsibilities(May Change):** Team Leader - Set and hold team meeting in an agile manner, Project design, Project Implementation(Roles to be determined at next team meeting), Generate method to read all Student and class predefined and newly inputted

**Team Member:** Balwinder Hayer (CWID: 889577029)

* **Proficient Programming Language:** C++/Java
* **Possible Responsibilities(May Change):** Project design, Project Implementation(Roles to be determined at next team meeting), Create list of student information(Student Profiles - Classes taken and classes still needed), Search Algorithm to check available classes

**Team Member:** Laura Solorio (CWID: 890185366)

* **Proficient Programming Language:** C++/Java(Intermediate Level)/Python
* **Possible Responsibilities(May Change):** Report Writing, Project Implementation(Roles to be determined at next team meeting), Create list of student information(Student Profiles - Name CWID), Algorithm to generate optimal schedule

**Team Member:** Rene Ortiz (CWID: 891389868)

* **Proficient Programming Language:** C++/Python
* **Possible Responsibilities(May Change):** Report Writing, Project Implementation(Roles to be determined at next team meeting), Create list of available/new classes(name, time available, prerequisites, max capacity per class)

a) Describe the initial idea of the project and justify why you think it is a cool idea.

The name of the program is The Computer Science Advisor. It will be an innovative, evolving C++ console artificial intelligence application. Its job is to receive input of a student id and load in that student’s information such as classes taken, classes they need to take, the time of currently available classes, the instructors teaching those classes, and finally the student’s preference that were discovered via previous runnings of the application and make a smart class schedule. This smart class schedule will be based on the preferences of the student whose id was inputted in due to past runnings such as time, teachers, and classes, assuming the class is not required to graduate. It will also only suggest classes that are open and then if there are not enough open classes fill in classes that are waitlist.

We think this idea is cool because at CSUF but especially the computer science major by the time you have a chance to sign up for classes the computer science classes you wanted to take for the semester are generally full already and the more time you take to make a new class schedule even more classes are gone and you have to make another class schedule etc. This can make it hard to get the classes you need or the teachers you want or the times you have available leading to many people not graduating until their 5th or 6th year. This can also lead to many people making the schedule as fast as they can leading to a non optimal class schedule. This program can instantly look at all the classes and create an optimal class schedule specifically for you very quickly, solving this problem.

b) Describe the requirements of the project including GUI, programming language, platform, AI algorithm, tools, external libraries, etc. If you did not decide on a concrete AI algorithm, you can specify a category, such as machine learning, heuristic, evolutionary computation, stochastic, etc. You can find the categories in the textbook, but not limited to the textbook, including Brute-force, Heuristics, Evolutionary approaches, Machine Learning, Deep Learning, etc.

It will be a C++ console application. Since it is innovative most of the code will likely have to be written by us. However, we will need the librarys for input, output, strings, reading, and writing to a file. The program will be evolutionary, learning the individual students desires through trial and error.

c) Describe the feasibility of finishing the project. For example, if the project is to be finished using Python, the team should have at least one person knows Python programming or is willing to learn Python by herself/himself.

All of our team knows C++ and can work on the program. While the program is innovative, the program is not that complex. The hardest part will be making all the data that is required into a readable file, which is more a matter or time than effort.

d) Describe a timeline that you plan to finish the project step by step.

First, we will gather the data required by the program such as classes, teachers, and time and put them into a readable format. This may require a dumb program to create the file. Then we will start work on the program inself. It will be split up into: welcome menu to input student id to loading the student preferences file or making a new student preferences file if no id is found, loading the data of the classes, finding the classes required by the student based on sub-major, making a class schedule from student preferences file and required courses, to finally altering the student preferences file based on whether the student likes the class schedule created, repeating the program if they dislike it or exiting if they do.

e) You should identify any challenges that arose in your initial design.

As it is the initial phase of the project which comprises mostly designing and choosing topic. Therefore, there are no unsurpassable challenges expected at this time.

f) A list of team members (name, CWID, and who is the team leader), their programming skills, and their possible responsibilities in the team (algorithm design/implementation, application program, GUI, report writing, etc.)

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