



Project Title: Student Grading System-application

Programming Language: Python

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1. Abstract

For this project, we chose to create a dynamic grading system which entries can be stored in a notepad as substitute for DBMS(Database Management System), which enables the lecturers or teachers using the grading system to keep, check and verify individual students grade points.

Using tkinter module toolkits, we were able to develop and implement most of the interface functionality required.

2. Introduction

This report aims to provide a detailed look at the resulting application and some analysis of the research conducted which influenced the functionality decisions made.

2.1 Background

At the beginning of the project, we had little (from Calculator Application) experience with python tkinter development and no experience with python file handling, so a large portion of time was dedicated to investigating, understanding the basic method of handling file(.txt) in Python.

A significant of the code in the application program has been adopted from the python documentation.

2.2 Project Brief

The main goal of this project was to build a functioning student grading system with a storage function using python programming language with tkinter module, one of python's popular module for creating Graphical User Interface.

The code to our project is on our team's Github account <https://github.com/unclebay143/Student-Grading-System> for download and access.

2.3 Development Platform:

The application was developed using the following medium

1. Pycharm – Python most powerful IDE for the coding.
2. Github – Used to track, maintain and make contributions to our project code as a team.

3. Application Details

3.1 Overview

The application provides input box for the users to provide their educational level information in other to proceed to calculating and storing their cumulative grade point average, generating entry box based on the information provided by the users (as seen in the figure below):

Student Grading System

Current CGPA :

Units Completed :

Enter Matric Number:

Number of Courses to add :

Student Grading System

Current CGPA :

Units Completed :

Enter Matric Number:

Number of Courses to add :

Course Name/Code :	Units :	Grades :
<input type="text" value="Higher Math"/>	<input type="text" value="3"/>	<input type="text" value="B"/>
<input type="text" value="English"/>	<input type="text" value="2"/>	<input type="text" value="A"/>
<input type="text" value="Literature"/>	<input type="text" value="1"/>	<input type="text" value="A"/>
<input type="text" value="Database"/>	<input type="text" value="1"/>	<input type="text" value="A"/>
<input type="text" value="Data Structure"/>	<input type="text" value="3"/>	<input type="text" value="C"/>
<input type="text" value="Web Design"/>	<input type="text" value="4"/>	<input type="text" value="A"/>
<input type="text" value="Programming"/>	<input type="text" value="2"/>	<input type="text" value="C"/>
<input type="text" value="Pc Maintainance"/>	<input type="text" value="1"/>	<input type="text" value="C"/>
<input type="text" value="Binary"/>	<input type="text" value="3"/>	<input type="text" value="B"/>
<input type="text" value="Calculus"/>	<input type="text" value="4"/>	<input type="text" value="B"/>

3.2 Design:

The application Graphical User Interface was built using tkinter which provides classes that allows the display, positioning and generating of widgets. With tkinter we were able to achieve a conditional widget creation in our application

3.3 Application Objective:

Before going into details in regards to the functionality of the application it's import to get an understanding of the grade calculation and how they can be saved into a .txt file, as these are the primary objects on which this application is based.

The number of course to add generate the number of entry box for the specified number of courses in the previous query

How the grading system works:

The system collects information from the student and use the provided values to process the output which is the outcome of calculating the numbers provided, the student entry is stored in our little database, a notepad.

Below are diagrams illustrating how the switch mode works and how the source code structure looks like.

4. Functionality:

4.1 What does the calculation

Python is indeed a powerful programming language, due to it inbuilt modules which gives us the ability to use it messagebox module by importing it into our code and it is really a reason the project was much user friendly.

we wrote a for statement containing the addition and division of the provided parameters by the users and this is processed into output and storage data.

4.2 The code:

The source code contains comment which gives other developers a clear idea of what a line or block of code does.

The source code can be found on our team's GitHub account:

```
import tkinter as *
from tkinter import messagebox
```

The first few lines of code in our program is to import the python modules which helps perform the major functions and building of interfaces in our program.

```
import tkinter as *
```

This simply means to import all the python module in tkinter

```
from tkinter import messagebox
```

This module helps us to prompt/alert the user when an information is needed to be passed.

Saving into a .txt file was done using the command in append "a" in python to join the next entry with the previous.

Below is the line of code handling the tricks

```
save_record = open("Student_grade_database.txt", "a")

a = ("\n\n Matric Number: " + student_matric_number +
     "\n\n CGPA : " + final_cgpa
    )
save_record.write(a)
```

The code looks for a file named Student_grade_database with an extension .txt and created it if not found.

A string concatenation containing the details for the student is saved in a variable called a and then appended into the file using the write function.

5. Future Concerns

5.1 Errors/Bugs

1. The add courses button become disabled when click
2. The application needs to be restarted before another entry is made

5.2 Update

This application has more functions yet to be implemented, below are list of to-add features

1. Using a more functional database like MySQL

2. Adding more grading calculation method and Allowing the users to select their choice
3. Improving the interface
4. Generating a pdf printout
5. Include more details on entries i.e. course name and grades

6. Conclusion

It was an exciting project to work on and there is a lot we learnt from it, above and beyond its original scope. we were able to study and train ourselves on development in an environment that was almost completely foreign to us, which we believe we have been reasonably successful with.

Although we were not able to complete some of the proposed functionality we had in mind, the functionality related to the core purpose of the application is working as desired. we believe there is still a lot of potential for this application, and we will continue development in the future.