Foundation certification in Higher Education

Module   : DOC 333 – Introduction to Programming

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Type of the Assignment   : Individual Coursework

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XYZ Company Project Management System

Introduction:

The XYZ Company Project Management System helps to organize and keep tabs on projects, assign tasks to available workers, and give important information for making good decisions. It's easy to use, with a menu that has different choices to make managing projects easier.

Menu Options:

1. Add a New Project:
   - Users can input details such as project code, client's name, start and end dates, required number of workers, and project status.
   - The system checks if there are sufficient available workers for the project.
   - Users are encouraged to confirm the addition of the project, and if confirmed, the project is saved, and the required workers are subtracted from the available pool.

2. Remove Completed Project:
   - Users can input the project code to remove a completed project.
   - The system verifies if the project code is valid and if the project is marked as completed.
   - Users are encouraged to confirm the deletion of the project, and if confirmed, the project is removed from the system.

3. Add New Workers:
   - Users can input the number of workers to be added to the available pool.
   - Users are encouraged to confirm the addition of workers, and if confirmed, the available workers count is updated.

4. Update Ongoing Projects:

- Users can input the project code to update details of an ongoing project.

- The system verifies the project code, releases the previously allocated workers, and prompts users to input updated project details.

- The system checks if there are sufficient available workers for the updated project.

- If there are sufficient available workers user updates the project

5. Project Statistics:

- Users can view statistics such as the number of ongoing, completed, and on-hold projects, along with the available workers count.

- Users have the option to add a new project or continue with other tasks.

6. Exit:

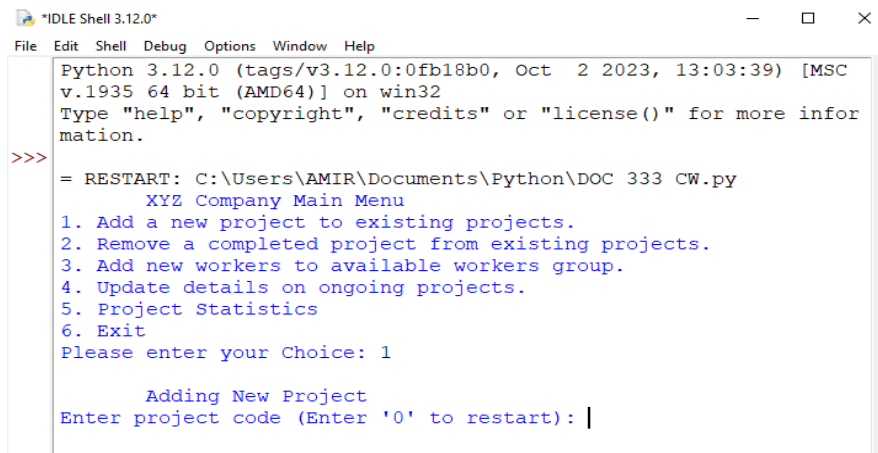- Users can exit the program, ending the project management system.

Test Cases

Test Case 1: Menu

1.1.Table test case for the menu page.

NO.	Input	Expected Outcomes	Actual Outcomes	Result
1.	1	Accesses add project page.	Accesses add project page.	Pass
2.	2	Accesses remove project page	Accesses remove project page	Pass
3.	3	Accesses add new workers page	Accesses add new workers page	Pass
4.	4	Accesses update details page	Accesses update details page	Pass
5.	5	Accesses project statistics page	Accesses project statistics page	Pass
6.	6	Ends program	Ends program	Pass
7.	88	Not a valid choice	Not a valid choice	Pass

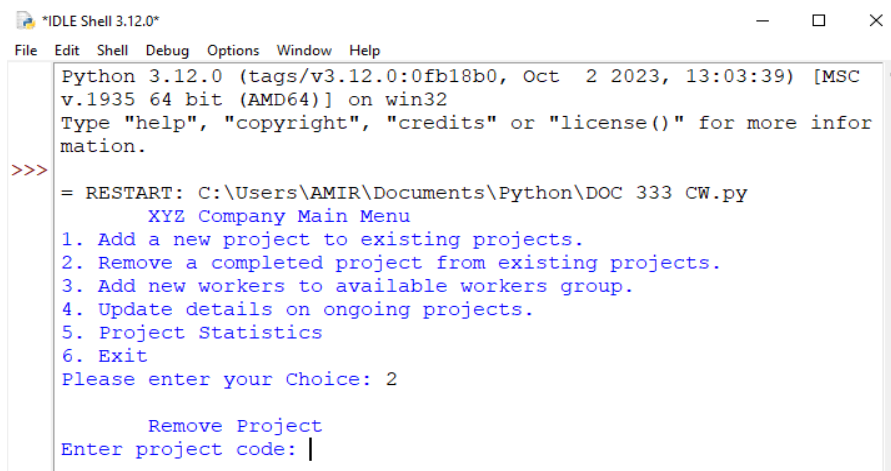*Table 1- Table Test case for menu page.*

1.2 Test Screenshot.

Figure 1.1- Input 1 on the menu page.
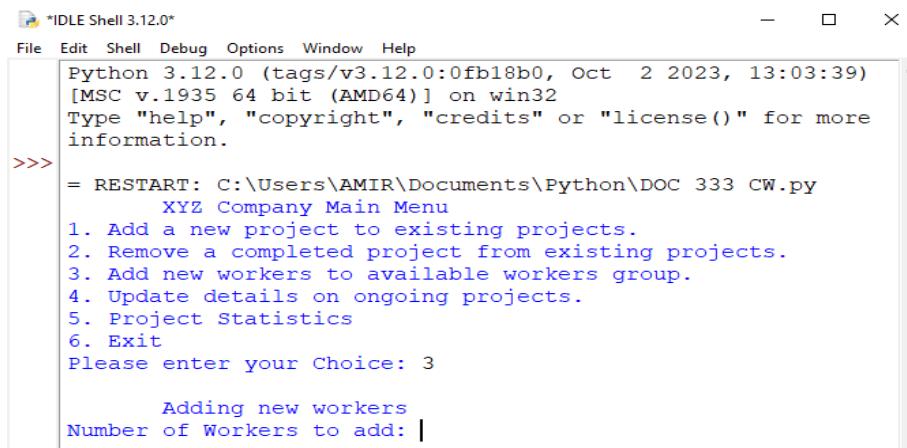
Figure 1.2- Input 2 on the menu page.

Figure 1.3- Input 3 on the menu page.

Figure 1.4- Input 4 on the menu page.

Figure 1.5- Input 5 on the menu page.

Figure 1.6- Input 6 on the menu page.

Figure 1.7- Input a number other than 1-6 on the menu page.

Test Case 2: Add project.

2.1 Table test case for the add project page.

NO.	Input	Expected Outcome	Actual Outcome	Result
1.	1	Prompts for project details, validates input, adds the project to the list, and updates available workers.	Prompts for project details, validates input, adds the project to the list, and updates available workers.	Pass
2.	0	Restarts the loop.	Restarts the loop.	Pass
3.	Invalid input for project details	Handles the error, displays an error message, and prompts the user to enter valid details.	Handles the error, displays an error message, and prompts the user to enter valid details.	Pass
4.	Insufficient available workers	Notifies the user that there are not enough available workers.	Notifies the user that there are not enough available workers.	Pass
5.	User chooses not to save the project	Doesn't add the project to the list, and available workers remain	Doesn't add the project to the list, and available workers remain	Pass

Table 2- Table Test case for Add project page.

2.2 Test screenshot.


```
IDLE Shell 3.12.0*                                          —    □    ×
File  Edit  Shell  Debug  Options  Window  Help
    Python 3.12.0 (tags/v3.12.0:0fb18b0, Oct  2 2023, 13:03:39) [MSC v.1935 6 ^
    4 bit (AMD64)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
>>>
    = RESTART: C:\Users\AMIR\Documents\Python\DOC 333 CW.py


                 XYZ Company Main Menu

    1. Add a new project to existing projects.
    2. Remove a completed project from existing projects.
    3. Add new workers to available workers group.
    4. Update details on ongoing projects.
    5. Project Statistics
    6. Exit
    Please enter your Choice: 1


                 Adding New Project

    Enter project code (Enter '0' to restart): 4566
    Enter client's name: Amer
    Enter starting date of the project: 2/4/2020
    Enter expected end date: 2/4/2024
    Enter the number of workers needed: 0
    Enter project status (ongoing/completed/hold): ongoing

    Project code- 4566
    Clients Name- Amer
    Start date- 2/4/2020
    End date- 2/4/2024
    Number of workers 0
    Project status ongoing
    Do you want to save the projec (yes/no)? yes
    Project saved succesfully
```

Figure 2.1- When user input 1 and all asked details.


```
IDLE Shell 3.12.0*                                          —    □    ×
File  Edit  Shell  Debug  Options  Window  Help
    Python 3.12.0 (tags/v3.12.0:0fb18b0, Oct  2 2023, 13:03:39) [MSC v.1935 ^
    64 bit (AMD64)] on win32
    Type "help", "copyright", "credits" or "license()" for more information.
>>>
    = RESTART: C:\Users\AMIR\Documents\Python\DOC 333 CW.py


                 XYZ Company Main Menu

    1. Add a new project to existing projects.
    2. Remove a completed project from existing projects.
    3. Add new workers to available workers group.
    4. Update details on ongoing projects.
    5. Project Statistics
    6. Exit
    Please enter your Choice: 0

    Not a valid choice. Please enter a valid choice between 1 and 6.

                 XYZ Company Main Menu

    1. Add a new project to existing projects.
    2. Remove a completed project from existing projects.
    3. Add new workers to available workers group.
    4. Update details on ongoing projects.
    5. Project Statistics
    6. Exit
    Please enter your Choice: |
```

Figure 2.2- When user input 0.

Figure 2.3- Insufficient workforce for the project.

Figure 2.4- If user says "no," project not saved.

Test Case 3: Remove a completed project.
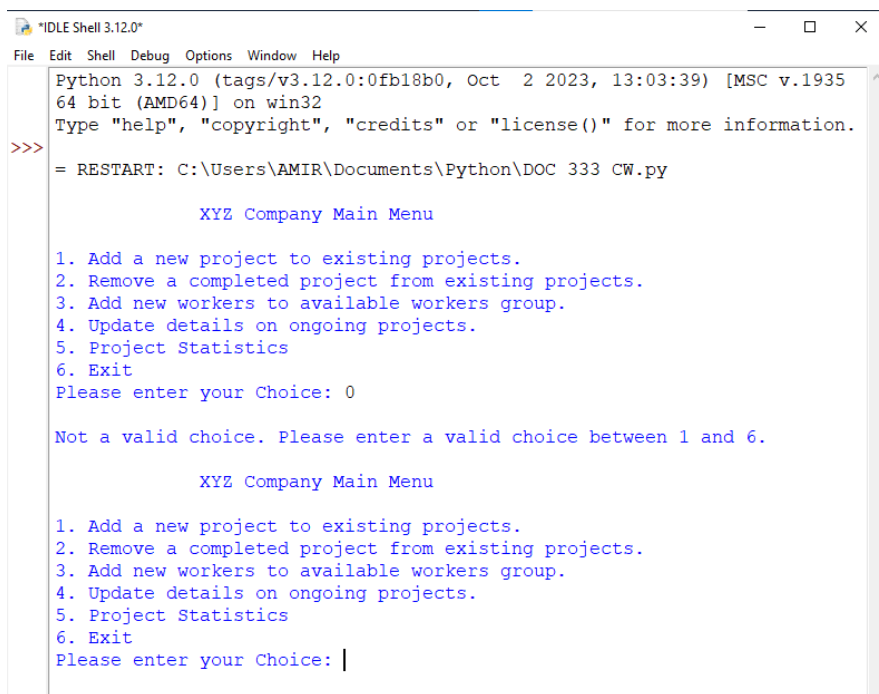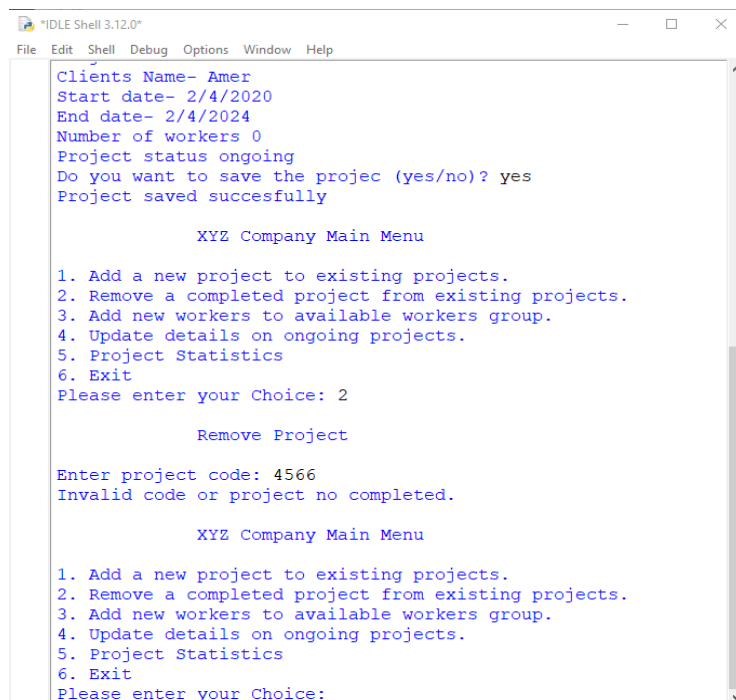
3.1 Table Test case for remove project page.

No.	Input	Expected Outcome	Actual Outcome	Result
1.	2	Prompts for a project code, checks if the project is completed, and removes it from the list if the user agrees.	Prompts for a project code, checks if the project is completed, and removes it from the list if the user agrees.	Pass
2.	Attempting to remove an ongoing or on-hold project	Notifies the user that the project is not completed and asks for a different project code.	Notifies the user that the project is not completed and asks for a different project code.	Pass
3.	Invalid project code	Handles the error, displays an error message, and prompts the user to enter a valid project code.	Handles the error, displays an error message, and prompts the user to enter a valid project code.	Pass
4.	The user chooses not to delete the project	Doesn't remove the project from the list.	Doesn't remove the project from the list.	Pass

Table 3- Table Test case for Remove project page.

3.2 Test Screenshot

Figure 3.1- User attempting to remove active project.

Figure 3.2- When user enters invalid code.
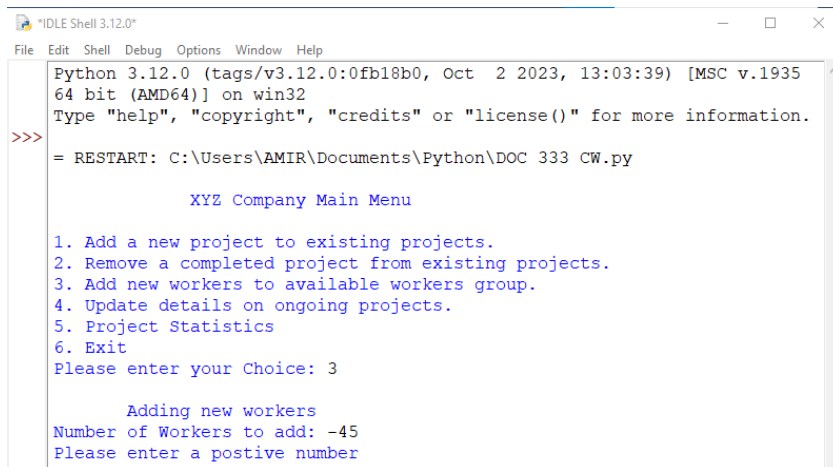

Figure 3.3- User says "no,"project remove.

Test Case 4: Adding new workers.

4.1 Table Test case for Adding new workers.

NO.	Input	Expected Outcome	Actual Outcome	Result
1.	3	Prompts for the number of workers to add, updates available workers accordingly.	Prompts for the number of workers to add, updates available workers accordingly.	Pass
2.	Invalid input for the number of workers	Handles the error, displays an error message, and prompts the user to enter a valid number.	Handles the error, displays an error message, and prompts the user to enter a valid number.	Pass
3.	User chooses not to add workers	Doesn't change the available workers.	Doesn't change the available workers.	Pass

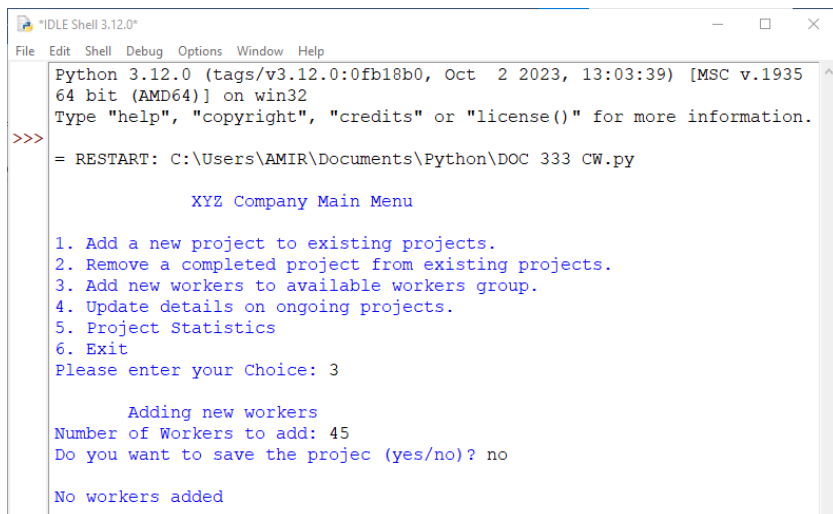*Table 4- Table Test case for adding new workers.*

4.2 Test Screenshot.

Figure 4.1- When user input invalid number.
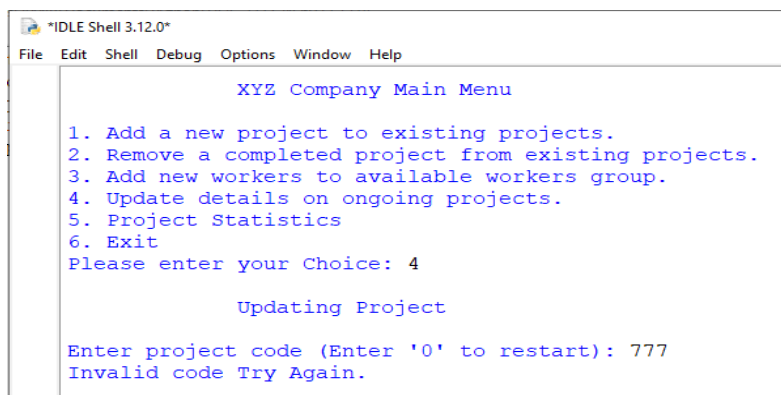

Figure 4.2- User says "no," no workers added.

Test Case 5: Update project details.

5.1 Table Test Case for Update Project Details.

NO.	Input	Expected Outcome	Actual Outcome	Result
1	4	Prompts for a project code, allow the user to update project details, and update available workers accordingly.	Prompts for a project code, allow the user to update project details, and update available workers accordingly.	Pass
2	Entering an invalid project code	Handles the error, displays an error message, and prompts the user to enter a valid project code.	Handles the error, displays an error message, and prompts the user to enter a valid project code.	Pass
3	Updating with insufficient available workers	Notifies the user that there are not enough available workers and prompts for a different number.	Notifies the user that there are not enough available workers and prompts for a different number.	Pass
4	User chooses not to save the updates	Doesn't update the project details, and available workers remain unchanged.	Doesn't update the project details, and available workers remain unchanged.	Pass

Table 5- Table Test Case for Update Project Details.

5.2 Test Screenshots

```
*IDLE Shell 3.12.0*
File  Edit  Shell  Debug  Options  Window  Help

              XYZ Company Main Menu

  1. Add a new project to existing projects.
  2. Remove a completed project from existing projects.
  3. Add new workers to available workers group.
  4. Update details on ongoing projects.
  5. Project Statistics
  6. Exit
  Please enter your Choice: 4

              Updating Project

  Enter project code (Enter '0' to restart): 777
  Invalid code Try Again.
```

Figure 5.1- When user inputs invalid code

Figure 5.2- When available workers are not enough.
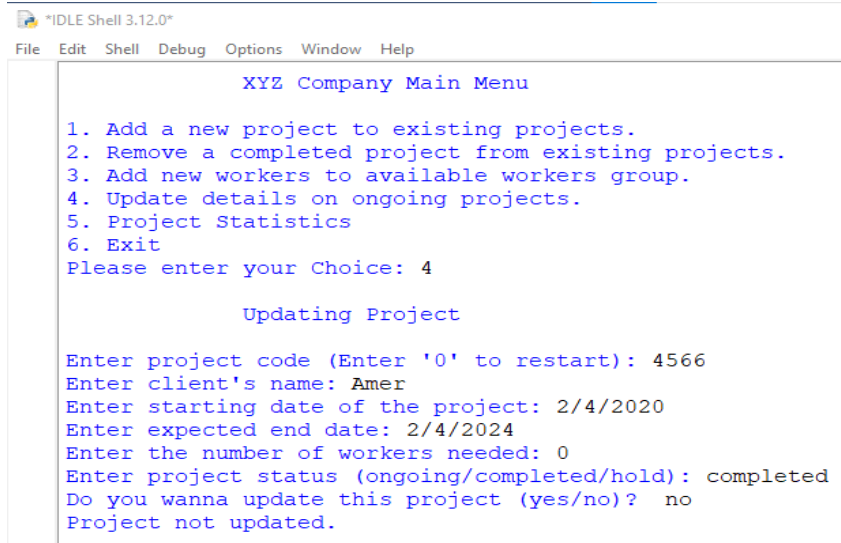

Figure 5.3- User says "no,"project not updated.

Test Case 6: Project statistics.

6.1 Table test case for Project statistics.

NO.	Input	Expected Outcomes	Actual Outcomes	Results
1	5	Displays the number of ongoing, completed, and on-hold projects, as well as the number of available workers.	Displays the number of ongoing, completed, and on-hold projects, as well as the number of available workers.	Pass

Table 6- Table test case for Project statistics.

6.2 Test Screenshots

Figure 6.1- When user inputs 4 in menu page

Test Case 7: Exit

7.1 Table Test Cases of Exit page

NO.	Input	Expected Outcome	Actual Outcome	Results
1	6	Displays a farewell message and terminates.	Displays a farewell message and terminates.	Pass

Table 7- Table Test Case when user inputs 6 in menu page

7.2 Test Screenshot

Figure 7.1- Table Test Case for Exit Page
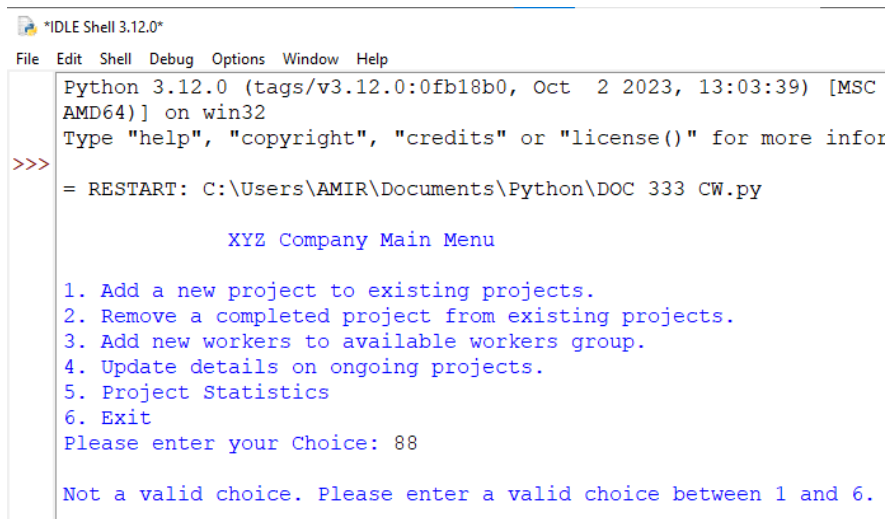
Test Case 8: Invalid Choice

8.1 Table test case for Invalid Choice

NO.	Input	Expected Outcome	Actual Outcome	Result
1	88	Not a valid choice	Not a valid choice	Pass

Table 8- Table test case for Invalid Choice

8.2 Test Screenshots

Figure 8.1- When user inputs invalid choice.

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