



Unit: Analysis, Design and Implementation

Assignment title: Freelance Platform

Spring 2024 – Winter 2024

Important notes

- Please refer to the *Assignment Presentation Requirements* for advice on how to set out your assignment. These can be found on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** read the NCC Education document *Academic Misconduct Policy* and ensure that you acknowledge all the sources that you use in your work. These documents are available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- You **must** complete the *Statement and Confirmation of Own Work*. The form is available on the NCC Education website. Hover over 'About Us' on the main menu and then navigate to 'Policies and Procedures' then scroll to the 'Student Support' area.
- Please make a note of the recommended word count. You could lose marks if you write 10% more or less than this.
- You must submit a paper copy and digital copy (on disk or similarly acceptable medium). Media containing viruses, or media that cannot be run directly, will result in a fail grade being awarded for this assessment.
- All electronic media will be checked for plagiarism.

Scenario

You are assigned the task of developing a program for a freelance platform. The program aims to connect freelancers with clients, providing a platform for hiring and completing various freelance projects.

The freelance platform program should allow users to create profiles as either freelancers or clients. Freelancers can showcase their skills, expertise, and portfolio, while clients can post projects for which they need help. The program should ensure that usernames are unique and passwords meet the following security requirements. The password must be between EIGHT (8) and TWELVE (12) characters long and contain at least ONE (1) lowercase and ONE (1) uppercase letter.

Once logged in, freelancers see a dashboard that displays available projects based on their skills and interests. Clients, on the other hand, can view a list of freelancers with relevant skills and expertise. They can also post new projects with detailed descriptions, timelines, and budgets.

The program should include a bidding system, where freelancers can submit proposals for projects in which they are interested. Clients can review the proposals, freelancer profiles, and past work to make informed decisions.

Your program will need to meet the following requirements:

- Set up the GUI.
- Allow a freelancer or client to create a new account.
- Enable users to create profiles as either freelancers or clients.
- Enable a freelancer to:
 - Set up a profile that includes details such as skills, expertise, portfolio, and past work.
 - Browse and bid on available projects.
 - Use a dashboard to manage ongoing projects and deadlines.
 - View the completed projects.
- Enable a client to:
 - Create a profile of their contact details.
 - View freelancer profiles.
 - Post projects with detailed descriptions, budgets, and timelines.
 - Leave reviews and ratings for completed projects.
- The program should have a user-friendly and intuitive interface for easy navigation and use.
- Provide appropriate errors help messages, and guidance for users.

Task 1 – 25 Marks

Class Diagram

Draw a class diagram to represent the system structure. The class diagram should be drawn with a suitable CASE tool and show attributes, operations, scope, and relationship of classes to each other with multiplicity. The use of abstract classes and sub-classes (where appropriate) will attract additional marks.

Provide a justification for why each class was selected for inclusion, and how its relationship to other classes was derived.

Task 2 – 20 Marks

Activity diagram

Draw an activity diagram to show the classes involved when a client wants to create a new account. Your diagram should clearly show which function is associated with each class.

Task 3 – 10 Marks

Use case diagrams

Draw a use-case diagram to capture the requirements listed in the scenario. The use case diagram should incorporate each of the user activities indicated in the brief.

Task 4 – 30 Marks

Software implementation

Write and deploy code to implement your system design for the requirements listed in the scenario. The code should appropriately handle input and output. Your software should implement a GUI that allows users to perform all the operations required above.

You must include an appropriate level of coupling and cohesion between the classes and any inheritances and encapsulations that represent the system.

All code should be written in C# for this assignment.

Task 5 – 15 Marks

Software Quality and Maintenance

Write a short report of TWO HUNDRED (200) words answering the following THREE (3) questions concerning software quality and maintenance.

- a) Define what refactoring means and explain why refactoring is important.
- b) There are various measures that can be used to assess the quality of software. Describe FOUR (4) measures that can be applied to your solution to assess its quality.
- c) Explain preventive maintenance. Give TWO (2) examples of what this type of maintenance involves.

Submission requirements

- Your program must be submitted as a zip file of the full project.
 - No marks will be awarded for code written in a language other than C#.
 - Whatever IDE you use, it should be possible to open and run the project directly from the extracted archive.
- Diagrams and materials associated with the tasks above should be presented in a Word-processed document.
- All references and citations must use the Harvard Style.

Candidate checklist

Please use the following checklist to ensure that your work is ready for submission.

Have you read the NCC Education document *Academic Misconduct Policy* and ensured that you have acknowledged all the sources that you have used in your work? ☐

Have you completed the *Statement and Confirmation of Own Work* form and attached it to your assignment? **You must do this.** ☐

Have you ensured that your work has not gone over or under the recommended word count by more than 10%? ☐

Have you ensured that your work does not contain viruses and can be run directly? ☐