Assessment method-based instructions and guidelines: Skills Test

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| **Assessment type** |
| * Skills Test |
| **Instructions provided to the student:** |
| Assessment task description: |
| * This is the second (2) assessment task you must successfully complete to be deemed competent in this unit of competency. * This assessment task requires you to complete a skills test. * You are required to apply intermediate object-oriented language skills in this assessment task. * You will receive your feedback within two weeks, and you will be notified by your trainer/assessor when results are available. * You must attempt all activities of the project for your trainer/assessor to assess your competency in this assessment task. |
| Applicable conditions: |
| * This skills test is untimed and is conducted as an open book assessment (this means you are able to refer to your textbook). * You must read and respond to all the criteria of the project. * You may handwrite/use computers to answer the criteria of the project. * You must complete the task independently. * No marks or grades are allocated for this assessment task. The outcome of the task will be Satisfactory or Not Satisfactory. * As you complete this assessment task, you are predominately demonstrating your practical skills, techniques and knowledge to your trainer/assessor. * The trainer/assessor may ask you relevant questions on this assessment task to ensure that this is your own work. |
| Resubmissions and reattempts: |
| * Where a student’s answers are deemed not satisfactory after the first attempt, a resubmission attempt will be allowed. * The student may speak to their trainer/assessor if they have any difficulty in completing this task and require reasonable adjustments. * For more information, please refer to the Training Organisation’s Student Handbook. |
| Location: |
| * This assessment task may be completed in:   a classroom  learning management system (i.e. Moodle),  workplace,  or an independent learning environment.   * Your trainer/Assessor will provide further student information regarding the location for completing this assessment task. |
| Purpose of the assessment |
| This assessment task is designed to evaluate student’s following skills and abilities:   * Skills to design and build at least one simple application program from a problem scenario and program specification. * Skills to use different object-oriented programming language techniques * Skills to check code optimisation. |

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| Task instructions |
| * This is an individual assessment. * To ensure your responses are satisfactory you should consult a range of learning resources and other information such as handouts, textbooks, learner resources etc. * The student must be concise, to the point and write answers according to the given word limit to each question and not provide irrelevant information. * You must write your responses in your own words. * You will be required to complete all parts of this assessment task. |
| Assessment environment |
| The assessment can be completed in one of the following assessment environments:   * Online environment * Simulated environment/ Classroom environment * Workplace environment |

**Online Environment**

**Assessment task instructions**

* The purpose of this assessment task is to undertake intermediate level programming tasks using an object-oriented programming language.
* The training organisation must ensure that the online assessment environment is in accordance with the requirements specified.
* The training organisation will assign a supervisor to the student.
* The training organisation will provide the resources required to complete the assessment task.
* The student must use the templates provided to document their responses.
* The student must follow the word-limits specified in the templates.
* The trainer/assessor must assess the student using the performance checklist provided.

**Online environment requirements**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment task environment**  This assessment task will be completed in an online environment prepared by your training organisation.  All required resources to complete the assessment task will be discussed with the student before they commence the assessment. The online environment is very much like a learning environment where a student is able to practice, use and operate appropriate industrial equipment, techniques, practices under realistic workplace conditions.  **Requirements for the online assessment environment**  The trainer/assessor will ensure that the online assessment environment is set up to complete this assessment task.  The online environment consists of:   * A learning management system where the student will be required to complete their job-related tasks and activities * The standard operating/workplace procedures related to the tasks and activities. * The trainer/assessor will provide the student with assistance throughout the assessment activity.   The online environment must meet the following criteria:   |  |  | | --- | --- | | **Opportunities for the student to:** | **Yes/No/NA** | | Follow standard operating/workplace procedures |  | | Use up-to-date software and equipment |  | | Work within stated timelines to meet deadlines |  | | Gain experience in the challenges and complexities of dealing with multiple tasks |  | | Experience prioritising competing tasks and dealing with contingencies |  | | The environment to work with others in a team |  | | Online assessment environment sufficient to communicate, contribute and participate in tasks and activities. |  | | Assessment environment sufficient to work independently and manage workload |  |   **Resources, tools, and equipment requirements**  The following resources, tools and equipment required to complete the assessment task will be discussed with the student before they commence the assessment:   * Workplace personnel/stakeholders to participate in the questioning session requires active participation in a range of creative thinking activities   + Please refer to the roles and responsibilities section for more information   + This should be organised by the training organisation either via, LMS, telephone conferences, video conferencing or anything of a similar nature * oriented design structures * programming languages that support object-oriented development * integrated development environment (IDE) * database management system (DBMS).   **Online assessment scenario**  You are required to undertake intermediate level programming tasks using an object-oriented programming language. You are required to read and understand a predetermined issue and/or situation and participate in a number of assessment activities.  The following are the goals and objectives to complete this assessment task:   * Build applications * Determine and document program requirements according to object-orientated programming specifications * Divide multiple source-code files into logical units and packages and collect data in internal storage * Implement internal data-sorting and searching facilities according to object-orientated programming specifications * Employ integrated-development environment facilities and make files to automate program building * Use facilities in specific language for persisting objects to binary files and confirm program stability * Write interactive database programs * Design, document and implement programs that connect to the required database according to program specifications * Design, document and implement programs that use language facilities according to program specifications * Design, document and implement programs that use language facilities to manipulate database structure * Write programs that deliver transactional integrity according to program requirements * Write graphical user interface * Employ graphical user interface (GUI) framework according to language requirements * Use standard GUI components according to object-orientated programming specifications * Respond to user and program-generated events and according to program requirements * Debug and test application * Examine variables and trace running code * Detect logical and coding errors according to program requirements * Examine variable contents during execution and detect and correct errors * Design and document limited tests of code * Test and document produced code and determine compliance with the program specification   A supervisor will be assigned to you by your training organisation. The supervisor can answer your questions related to understanding the requirements associated with the assessment task. The supervisor will act according to job role and responsibilities.  The supervisor can be your trainer or assessor or a different trainer or assessor or a staff member (including mentors) from the training organisation.  **Roles and responsibilities**  As part of your job role, you have the following job responsibilities:   * Monitors outcomes of decisions and results and identifies key concepts and principles that may be adaptable in the future * Articulates information and requirements, using effective communication techniques and industry standard technical language intended for audience and environment * Analyses and interprets technical documents * Accurately records and completes documentation according to organisational formats and procedures * Writes and edits code and technical data in a logical manner using required syntax * Creates, and selects, a required application that meets the set requirements * Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues * Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems * Uses systematic processes, setting goals, gathering required information and identifying and evaluating options against agreed criteria * Uses a range of digitally based technologies to access, extract, and share relevant information in order to achieve the required outcomes   **Task requirements**  This assessment task requires you to undertake intermediate level programming tasks using an object-oriented programming language. The assessment activities are mentioned within the assessment task. |

**Simulated Environment**

**Assessment task instructions**

* The purpose of this assessment task is to undertake intermediate level programming tasks using an object-oriented programming language.
* The training organisation must ensure that the simulated assessment environment is in accordance with the requirements specified.
* The training organisation will assign a supervisor to the student.
* The training organisation will provide the resources required to complete the assessment task.
* The student must use the templates provided to document their responses.
* The student must follow the word-limits specified in the templates.
* The trainer/assessor must assess the student using the performance checklist provided.

**Simulated environment requirements**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment task environment**  This assessment task will be completed in a simulated environment prepared by your training organisation.  The simulated environment will provide you with all the required resources (such as the equipment and participants, etc.) to complete the assessment task. The simulated environment is very much like a learning environment where a student is able to practice, use and operate appropriate industrial equipment, techniques, practices under realistic workplace conditions.  **Requirements for the simulated assessment environment**  The trainer/assessor will ensure that the simulated assessment environment is sufficient to complete this assessment task.  The simulated environment consists of:   * The training organisation as the workplace where the student will be required to complete their job-related tasks and activities * The standard operating/workplace procedures related to the training organisation * The trainer/assessor will provide the student with assistance throughout the assessment activity.   The simulated environment must meet the following criteria:   |  |  | | --- | --- | | **Opportunities for the student to:** | **Yes/No/NA** | | Follow standard operating/workplace procedures |  | | Use up-to-date software and equipment |  | | Work within stated timelines to meet deadlines |  | | Gain experience in the challenges and complexities of dealing with multiple tasks |  | | Experience prioritising competing tasks and dealing with contingencies |  | | Simulated environment to work with others in a team |  | | Simulated environment sufficient to communicate, contribute and participate in tasks and activities. |  | | Simulated environment sufficient to work independently and manage workload |  |   **Resources, tools, and equipment requirements**  The following resources, tools and equipment will be made available by the training organisation at the simulated workplace to complete this assessment task:   * Workplace personnel/stakeholders to participate in the questioning session requires active participation in a range of creative thinking activities   + Please refer to the roles and responsibilities section for more information * oriented design structures * programming languages that support object-oriented development * integrated development environment (IDE) * database management system (DBMS).   **Simulated assessment scenario**  You are required to undertake intermediate level programming tasks using an object-oriented programming language. You are required to read and understand a predetermined issue and/or situation and participate in a number of assessment activities.  The following are the goals and objectives to complete this assessment task:   * Build applications * Determine and document program requirements according to object-orientated programming specifications * Divide multiple source-code files into logical units and packages and collect data in internal storage * Implement internal data-sorting and searching facilities according to object-orientated programming specifications * Employ integrated-development environment facilities and make files to automate program building * Use facilities in specific language for persisting objects to binary files and confirm program stability * Write interactive database programs * Design, document and implement programs that connect to the required database according to program specifications * Design, document and implement programs that use language facilities according to program specifications * Design, document and implement programs that use language facilities to manipulate database structure * Write programs that deliver transactional integrity according to program requirements * Write graphical user interface * Employ graphical user interface (GUI) framework according to language requirements * Use standard GUI components according to object-orientated programming specifications * Respond to user and program-generated events and according to program requirements * Debug and test application * Examine variables and trace running code * Detect logical and coding errors according to program requirements * Examine variable contents during execution and detect and correct errors * Design and document limited tests of code * Test and document produced code and determine compliance with the program specification   A supervisor will be assigned to you by your training organisation. The supervisor can answer your questions related to understanding the requirements associated with the assessment task. The supervisor will act according to job role and responsibilities.  The supervisor can be your trainer or assessor or a different trainer or assessor or a staff member (including mentors) from the training organisation.  **Roles and responsibilities**  As part of your job role, you have the following job responsibilities:   * Monitors outcomes of decisions and results and identifies key concepts and principles that may be adaptable in the future * Articulates information and requirements, using effective communication techniques and industry standard technical language intended for audience and environment * Analyses and interprets technical documents * Accurately records and completes documentation according to organisational formats and procedures * Writes and edits code and technical data in a logical manner using required syntax * Creates, and selects, a required application that meets the set requirements * Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues * Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems * Uses systematic processes, setting goals, gathering required information and identifying and evaluating options against agreed criteria * Uses a range of digitally based technologies to access, extract, and share relevant information in order to achieve the required outcomes   **Task requirements**  This assessment task requires you to undertake intermediate level programming tasks using an object-oriented programming language. The assessment activities are mentioned within the assessment task. |

**Workplace Environment**

**Assessment task instructions**

* The purpose of this assessment task is to undertake intermediate level programming tasks using an object-oriented programming language.
* The training organisation must ensure that the workplace assessment environment is in accordance with the requirements specified.
* The workplace will assign a supervisor to the student.
* The trainer/assessor can also act as a supervisor to the student as well.
* The workplace will provide the resources required to complete the assessment task.
* The student must use the templates provided to document their responses.
* The student must follow the word-limits specified in the templates.
* The trainer/assessor must assess the student using the performance checklist provided.

**Workplace requirements**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assessment task environment**  This assessment task will be completed in your workplace.  **The requirements for the workplace environment**  The assessment task can be completed in the workplace if the student is currently working or has access to a workplace meeting the assessment criteria.  The workplace must meet the following criteria:   |  |  | | --- | --- | | **Opportunities for students to:** | **Yes/No/NA** | | Follow standard operating/workplace procedures |  | | Use up-to-date software and equipment |  | | Work within stated timelines to meet deadlines |  | | Gain experience in the challenges and complexities of dealing with multiple tasks |  | | Experience prioritising competing tasks and dealing with contingencies |  | | Workplace environment to work with others in a team |  | | Workplace environment to sufficient to communicate, contribute and participate in tasks and activities. |  | | Workplace sufficient to work independently and manage workload |  |   **Resources, tools, and equipment requirements**  The following resources, tools and equipment must be available at the workplace to complete this assessment task:   * Workplace personnel/stakeholders to participate in the questioning session requires active participation in a range of creative thinking activities   + Please refer to the roles and responsibilities section for more information * oriented design structures * programming languages that support object-oriented development * integrated development environment (IDE) * database management system (DBMS).   **Workplace scenario**  You are required to undertake intermediate level programming tasks using an object-oriented programming language. You are required to read and understand a predetermined issue and/or situation and participate in a number of assessment activities.  The following are the goals and objectives to complete this assessment task:   * Build applications * Determine and document program requirements according to object-orientated programming specifications * Divide multiple source-code files into logical units and packages and collect data in internal storage * Implement internal data-sorting and searching facilities according to object-orientated programming specifications * Employ integrated-development environment facilities and make files to automate program building * Use facilities in specific language for persisting objects to binary files and confirm program stability * Write interactive database programs * Design, document and implement programs that connect to the required database according to program specifications * Design, document and implement programs that use language facilities according to program specifications * Design, document and implement programs that use language facilities to manipulate database structure * Write programs that deliver transactional integrity according to program requirements * Write graphical user interface * Employ graphical user interface (GUI) framework according to language requirements * Use standard GUI components according to object-orientated programming specifications * Respond to user and program-generated events and according to program requirements * Debug and test application * Examine variables and trace running code * Detect logical and coding errors according to program requirements * Examine variable contents during execution and detect and correct errors * Design and document limited tests of code * Test and document produced code and determine compliance with the program specification   A supervisor will be assigned to you by your training organisation. The supervisor can answer your questions related to understanding the requirements associated with the assessment task. The supervisor will act according to job role and responsibilities.  The supervisor can be your trainer or assessor or a different trainer or assessor or a staff member (including mentors) from the training organisation.  **Roles and responsibilities**  As part of your job role, you have the following job responsibilities:   * I Monitors outcomes of decisions and results and identifies key concepts and principles that may be adaptable in the future * Articulates information and requirements, using effective communication techniques and industry standard technical language intended for audience and environment * Analyses and interprets technical documents * Accurately records and completes documentation according to organisational formats and procedures * Writes and edits code and technical data in a logical manner using required syntax * Creates, and selects, a required application that meets the set requirements * Identifies technical or conceptual issues, and applies analytical processes, to resolve these issues * Uses analytical and lateral thinking to review current practices, and to develop new or improved software or systems * Uses systematic processes, setting goals, gathering required information and identifying and evaluating options against agreed criteria * Uses a range of digitally based technologies to access, extract, and share relevant information in order to achieve the required outcomes   **Task requirements**  This assessment task requires you to undertake intermediate level programming tasks using an object-oriented programming language. The assessment activities are mentioned within the assessment task. |

Assessment Task 2: Skills Test

**Skills Test:**

You have recently been hired as a junior programmer for a large development company. Your immediate manager wants to get a handle on your expertise before assigning you to commercial development tasks. They have designed two small application tests where you can highlight your expertise in the following areas:

* Client-server application functionality
* Using nested classes
* Implementing inheritance
* Implement 2D graphics
* Using multi-threading
* Using drag and drop operations
* Undertaking debugging
* Providing help documentation in GUI format
* Adhering to coding conventions

You will be showcasing these skills in the following activities.

Where appropriate you should adhere to the organisation coding conventions as follows:

**Coding conventions**

Your code should adhere to the following organisational coding convention standards:

* Apps must be built with the existing architectural framework of the organisation
* When naming variables and methods use the camel case convention
* When naming classes use the pascal case convention
* When naming GUI fields/controls you should use descriptive names
* Ensure that all variables, methods, and classes have descriptive names
* Ensure that each method has an internal document header describing what the method does, and what the method parameters are used for if they have been specified
* Code should be indented for ease of readability
* Open and close braces should be used for all code blocks even those that have a single statement
* Ensure that you use if – else conditional statements instead of the ternary operator shortcut
* You should use constants instead of major numbers
* Constants should be named using all capital letters

To complete this assessment task students are required to participate in a meeting using the template provided:

When conducting the meeting, you are required to:

* Greet the team members.
* Discuss the following:
  + Build applications
  + Write interactive database programs
  + Write graphical user interface
  + Debug and test application
* Ensure the understanding of the team members.
* Gather feedback from the team members.
  + Use listening and questioning to elicit the views of others and to clarify or confirm understanding
* Discuss the roles and responsibilities of the team members.

The team member will:

* Clarify their doubts of the team members
* Provide feedback on the improvements required

After the meeting, you are then required to:

* Prepare the meeting minutes template.
* Complete the assessments activities, as mentioned.

**Meeting agenda template:**

|  |  |  |  |
| --- | --- | --- | --- |
| **Date/Time:** |  | | |
| **Location:** |  | | |
| **Chairperson:** |  | | |
| **Meeting Attendees:**  ***Full names and roles*** |  | | |
| **Agenda Item/Topic** | **Discussion/Outcomes** | **Action Officer** | **Due Date** |
| **Welcome** |  |  |  |
| **(*Agenda item 1)***  ***Topic?*** |  |  |  |
| **(*Agenda item 2)***  ***Topic?*** |  |  |  |
| **(*Agenda item 3)***  **Topic?** |  |  |  |
| **Summary** | ***Overall Summary***  ***Decision/s***  ***Action/s if any*** |  |  |
| **Next Meeting time/date** |  |  |  |
| **Meeting closed at:** |  |  |  |
| **Minutes are a true and accurate record of the meeting** | **Approved/confirmed by whom?** |  |  |

***Meeting minutes template:***

|  |  |  |  |
| --- | --- | --- | --- |
| **Minutes of Meeting**  **Meeting Objective:**  **Attendees:**  **Venue:**  **Date:** | | | |
| **No.** | **Points Discussed** | **Actions Suggested** | **Target Date** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
| **Signature of attendee 1: Signature of attendee 2:**  **Signature of attendee 3: Signature of attendee 4:** | | | |

**Activity 1: (Develop client-server application)**

In this activity you need to develop a GUI client-server application using an object-oriented programming language such as C# or Java, which uses a local client connected to a server based application using the Transmission Control Protocol (TCP).

The design of the client-server application is a simple chat program which allows a client-based app to connect to and send messages to the server-based app. A connection to a database table is required to gather available users that can be used to send messages. The server-based app can send messages to any connected clients-based apps.

This activity is split into several tasks:

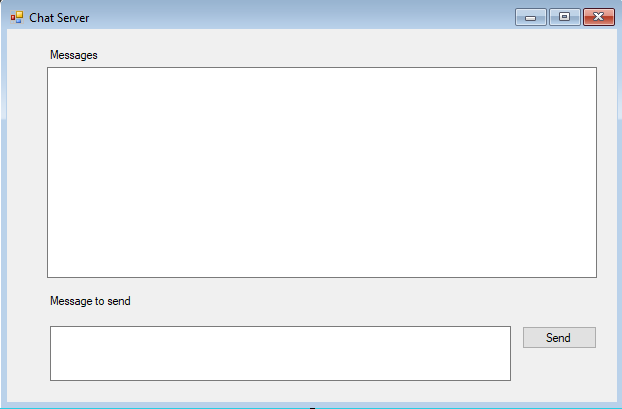
* Develop client-server app and database
* Integrate help documentation
* Debug and test client-server app

**Task 1: Develop client-server app and database**

The client-server app must meet the following requirements.

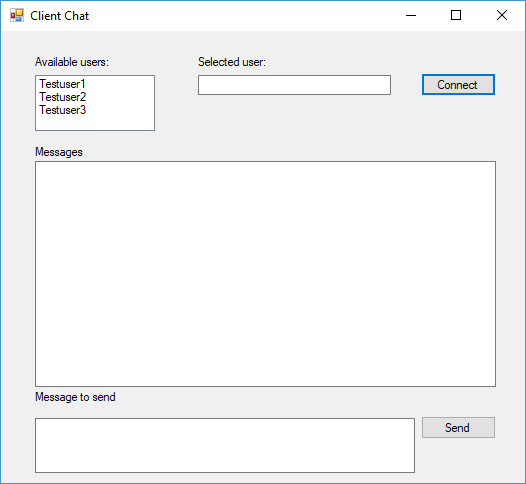
**Functionality requirements**

The design of the Server app should appear similar to that shown below:



It is to contain a message area where messages from clients are received and displayed. It also has an area where a user of this app can type out a message which will be sent to all connected clients when the **Send** button is clicked.

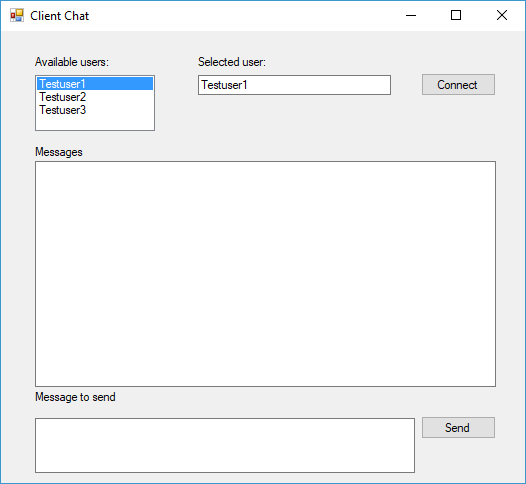
The design of the Client app should appear similar to the following:



A list of available users should be retrieved from a database table which stores all available users. In this instance three test users are available.

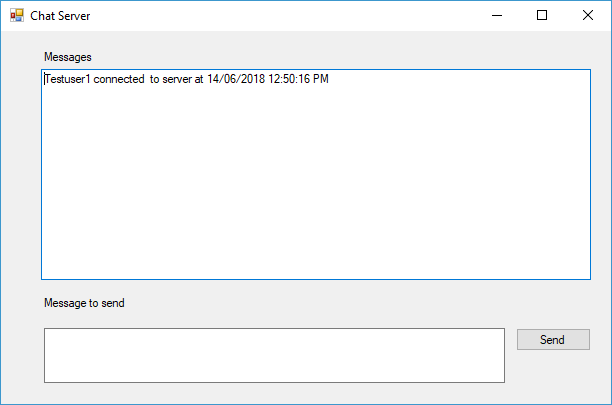
It is to contain a message area where messages from the server are received and displayed. It also has an area where a user of this app can type out a message which will be sent to the server when the **Send** button is clicked.

To connect to the server you must drag and drop a user from the available users’ list box to the selected user text field. An example is shown below where Testuser1 has been dragged from the available users to the selected user text field:

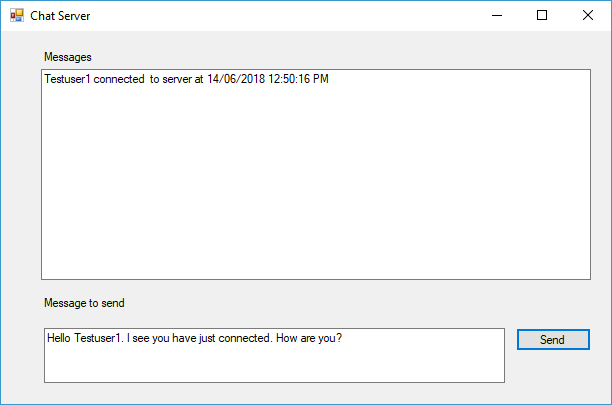


The **Connect** button is used to connect to the server based app using the username that the user has selected. Note that the server must be running and listening for clients otherwise the client will not be able to connect.

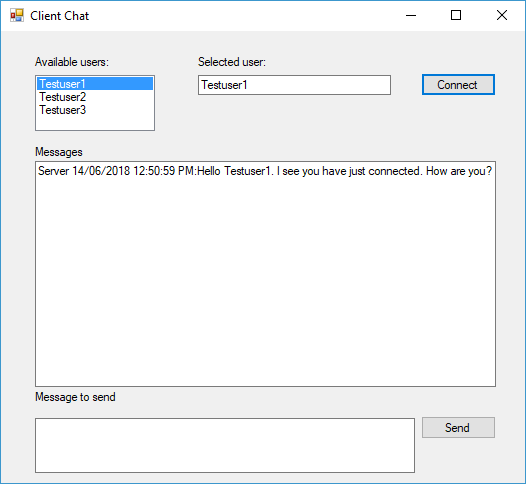
When the **Connect** button is clicked, a TCP connection should be opened to the server app displaying who that the user is connected to the server with a timestamp of the time that the connection was made in the message area of the server. An example is shown below:



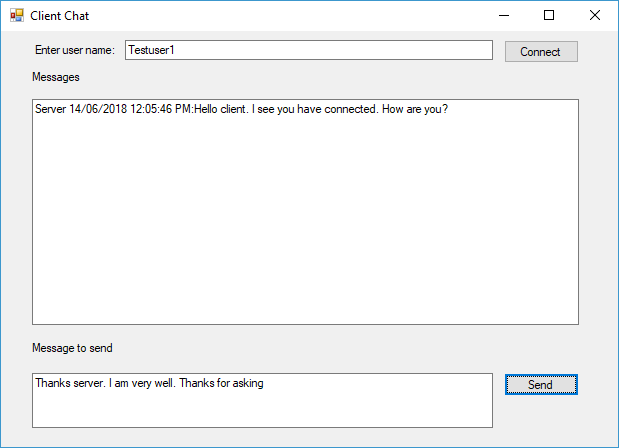
If the user of the server app enters a message and click the **Send** button similar to the example should below:



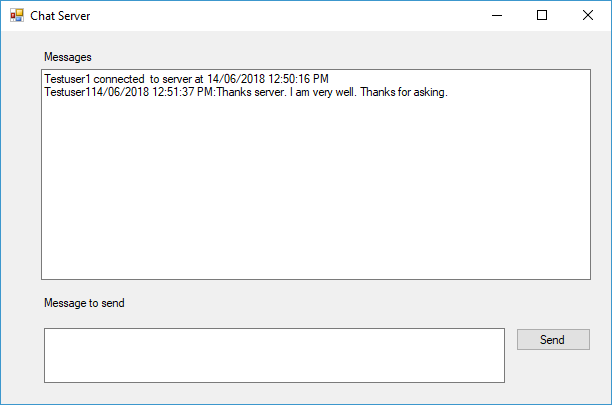
Then the specified message should be transferred to the client app and displayed in the message area:



If the user of the client app enters a message and click the **Send** button similar to the example should below:



Then the specified message should be transferred to the client and displayed in the message area:



You are required to create a database for the above given users and connect with the client-server application.

The database tablefor the available users shouldbe a simple database with a single field called **UserID** which should have a string format of 20 characters. The list of available users should be data bound to the **UserID** field, displaying the available users.

**Coding requirements**

The following coding requirements required for the apps must be included:

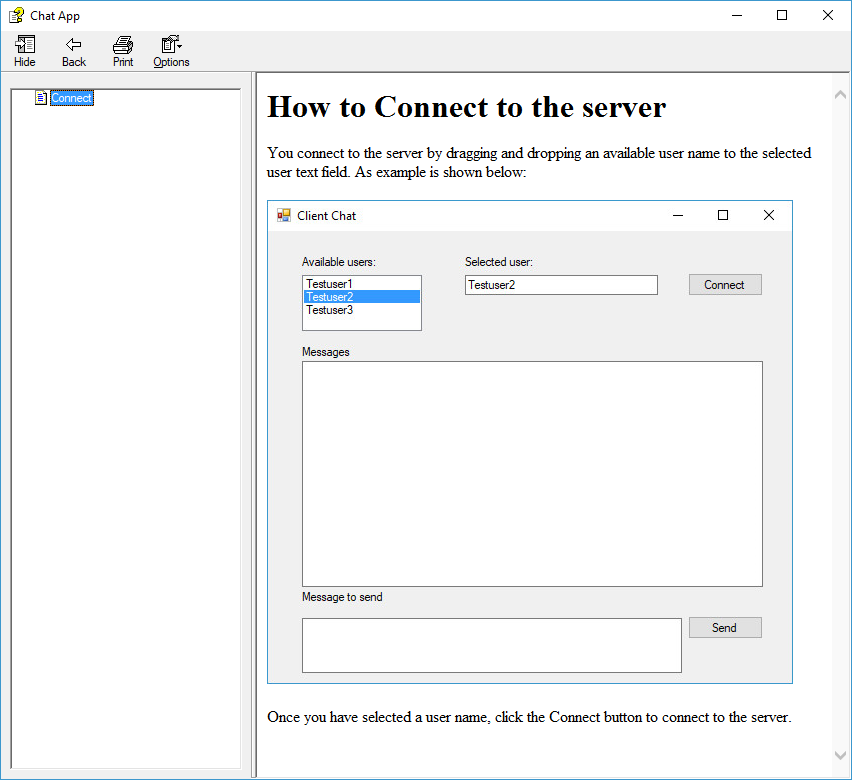
* Coding conventions as given in the scenario must be adhered to.
* The timestamp for the messages must be implemented by using a nested class.
* Must use TCP for communication
* Both apps must implement threading to listen for incoming messages.

You should refer to the online help documentation on design patterns used by the object-oriented language if you require help in coding the apps.

**Task 2: integrate help file**

You need to develop a basic GUI help file to support the user of the client based app. You need to develop an HTML file that will be displayed in a GUI window showing the user how they can connect to the server based app from the client.

The help file should provide a simple instruction in HTML format that tells the user how they can connect. It should contain textual instructions and a single screenshot. An example is shown below of a simple help file that has been created using HTML Help Workshop which has been opened from the client based app:



**Task 3: Testing requirements**

You are to develop a functional testing document using a word processor to test the functions of the apps using the following organisational testing document template.

**Functional Test Document**

App to test: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Tester: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Testing Completed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Function to test** | **Passed/Fail** |
|  |  |
|  |  |
|  |  |

You need to list every function that the server and client based apps need to undertake.

Once you have documented the functional tests, then you need to undertake testing using the document as a guide, confirming that the function is successful (or not). If there is an issue with any of the functions you should use the debugging tools within the IDE you are using to determine why the function is not working. You should use appropriate debugging tools to trace through the code to determine logic or coding errors, and undertake remedial actions as required until all functions are working as expected.

**Activity 2: (Develop multi-threading 2D app)**

**Note: This activity is in continuation of the previous activity**

In this activity you need to develop a GUI application that implements 2D drawing in a GUI form using multi-threading,

This activity is split into a number of tasks:

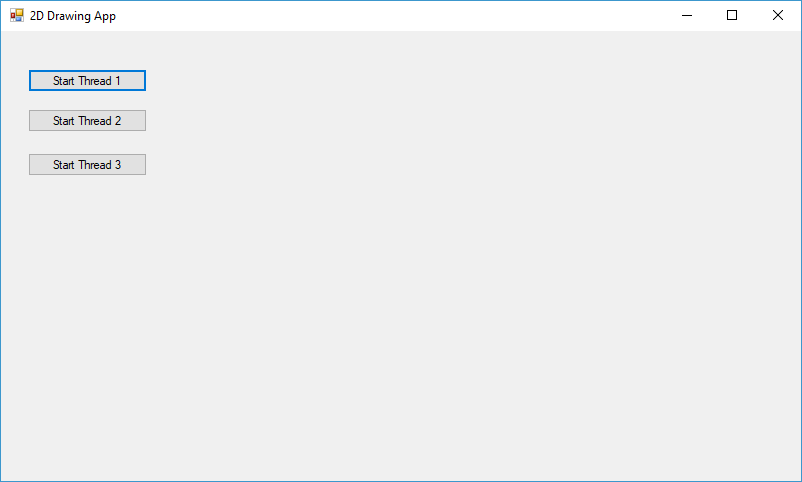
* Develop multi-threading 2D drawing app
* Integrate help documentation
* Debug and test the 2D drawing app

**Task 1: Develop multi-threading 2D drawing app**

The app must meet the following requirements.

**Functionality requirements**

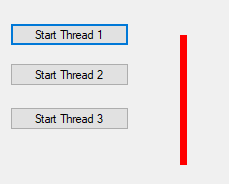
The design of the app should appear similar to that shown below:



Each button should start a method via a thread that implements drawing a 2D object as follows:

* **DrawObject1**: draws a vertical red line.
* **DrawObject2**: draws a solid green square
* **DrawObject3**: draws a graded blue-green circle

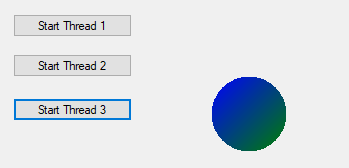
When the **Start Thread 1** button is clicked the **DrawObject1** method should be started and draw a line as follows:



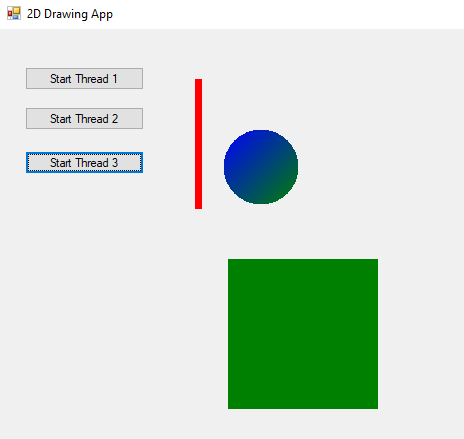
When the **Start Thread 2** button is clicked the **DrawObject2** method should be started and draw a square as follows:



When the **Start Thread 3** button is clicked the **DrawObject3** method should be started and draw a circle as follows:



An example is shown below of all three threads being run concurrently:



**Coding requirements**

The following coding requirements required for the apps must be included:

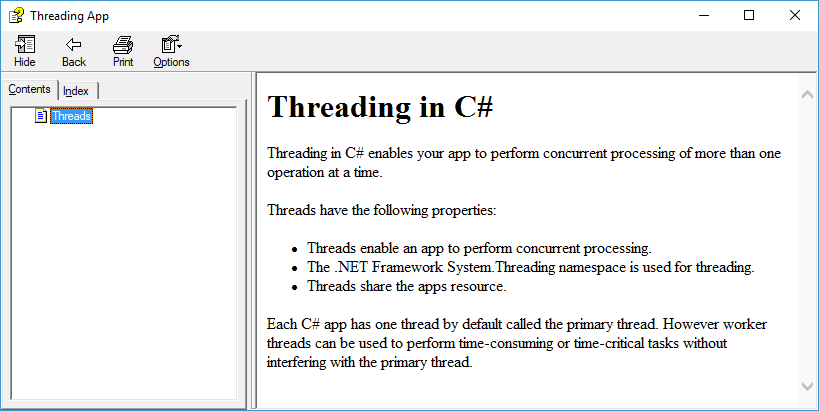
* Coding conventions as given in the scenario must be adhered to.
* The app must implement threading to draw the 2D objects

You should refer to the online help documentation on design patterns used by the object-oriented language if you require help in coding the apps.

**Task 2: integrate help file**

You need to develop a basic GUI help file to support the developers which provides an overview of how thread work. You need to develop an HTML file that will be displayed in a GUI window providing the user an overview of threads.

The help file should provide a simple instruction in HTML format that tells the user what a thread is and how they can be implemented in the language you have created the app in. An example is shown below of a simple help file that has been created using HTML Help Workshop which has been opened from the app:



**Task 3: Testing requirements**

You are to develop a functional testing document using a word processor to test the functions of the app using the following organisational testing document template

**Functional Test Document**

App to test: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Tester: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Date Testing Completed: \_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |
| --- | --- |
| **Function to test** | **Passed/Fail** |
|  |  |
|  |  |
|  |  |

You need to list every function that the server and client based apps need to undertake.

You need to list every function that the app needs to undertake.

Once you have documented the functional tests, then you need to undertake testing using the document as a guide, confirming that the function is successful (or not). If there is an issue with any of the functions you should use the debugging tools within the IDE you are using to determine why the function is not working. You should use appropriate debugging tools to trace through the code to determine logic or coding errors, and undertake remedial actions as required until all functions are working as expected.