

1.

A. One reason the programmer has not given sufficient attention to the code is that the function should be separated into two different functions because a user might only want to do one of the two functions instead of both. Another reason that the programmer has not given sufficient attention to the code is that the naming is too vague and we can't clearly understand what is being done. Another reason that the programmer has not given enough thought about the structure of the code is that when users input information it's usually near the start of the program and when outputting information it is usually near the end of the program so by having them in one function can be confusing and a problem.

4

B.

Create login menu

Ask for username

Ask for password

Check to see if username is valid

Check to see if password is valid

If username and/or password is invalid remove 1 of 3 attempts

If user fails 3 times then lock them out for 5 minutes

If user successfully logs in then ask them to input how many products they are going to enter values for

Input values for each product

Calculate tax paid

Output tax paid total

6

needs expansion here.

C. One test I would use to confirm the program works is to simply login with the correct username and password to check that it lets the user in correctly. Another test is to use up all the attempts by failing on purpose to check that it locks the user out and then I can also try to login before and after 5 minutes to test the 5 minute timer. Another test is to login successfully after failing once then twice.

Need more specifics.

3



2.

A.

Create menu asking user to make a choice

Choice 1 is to calculate the area of a rectangle

Choice 2 is to calculate the area of a circle

Choice 3 is to exit the application

If user chooses option 1

Check that the users choice is valid (not a letter and between 1 and 3)

Ask user to input the width of the rectangle

Ask user to input the height of the rectangle

Calculate the area (width x height)

Output result

Display option menu

If user chooses option 2

Check that the users choice is valid (not a letter and between 1 and 3)

Ask user to input the radius of the circle

Calculate the area ($\pi * \text{radius}^2$)

Output result

Display option menu

If user chooses option 3

Check that the users choice is valid (not a letter and between 1 and 3)

Exit application

3.

A. You can't have a square from a top left point and a width because you also need a height to decide where to put the bottom line. From the top left you add the width to the x and add the height to the y to get the boundaries of the square. You can find out if a point is not inside the square by checking if the point is more than the x and or y which means it's past the sides. You can also check if it's less than the left x and the top y. If you want to find out if it's inside you can check if the point is more than the top left x and y but also less than the width and height.

```

using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Examtask2CallumHall
{
    class Program
    {
        static void Main(string[] args)
        {
            //callum hall    hall16829469

            int choice = 0;
            int rectWidth = 0;
            int rectHeight = 0;
            int rectArea = 0;
            double pi = 3.14;
            double radius = 0;
            double circArea = 0;
            bool menuloop = true;

            //while loop for the menu which allows the program to be used repeatedly
            until the user exits
            while (menuloop == true)
            {
                //displays the menu options
                Console.WriteLine("Please choose an option");
                Console.WriteLine("1. Calculate area of rectangle");
                Console.WriteLine("2. Calculate area of circle");
                Console.WriteLine("3. Exit");

                //sets the choice to what the user has picked
                choice = int.Parse(Console.ReadLine());

                //if loops to execute the different methods for each option with
                validation making sure the input is 1 2 or 3
                if (choice != 1)
                {
                    if (choice != 2)
                    {
                        if (choice != 3)
                        {
                            Console.WriteLine("Please enter one of the three options");
                        }
                    }
                }
                if (choice == 1)
                {
                    Console.WriteLine("You have chosen option 1");
                    Console.WriteLine();
                    calculateRectangle(rectWidth, rectHeight, rectArea, menuloop);
                }
                if (choice == 2)
                {
                    Console.WriteLine("You have chosen option 2");
                    Console.WriteLine();
                    calculateCircle(pi, radius, circArea, menuloop);
                }
                if (choice == 3)
                {
                    Environment.Exit(0);
                }
            }
        }
    }
}

```

Handwritten notes:

- tryParse?* (next to `int.Parse`)
- drops* (with an arrow pointing to the `if (choice == 1)` block)
- think code of invalid choice* (with an arrow pointing to the `if (choice != 1)` block)
- Why?* (with an arrow pointing to the `calculateCircle` call)

```
static void calculateRectangle(int width, int height, int area, bool menuloop)
```

```
{
    * menuloop = false;
    //user rectangle dimensions input
    Console.Write("Enter the rectangle width: ");
    width = int.Parse(Console.ReadLine());
    Console.Write("Enter the rectangle height: ");
    height = int.Parse(Console.ReadLine());
    //rectangle area calculations
    area = width * height;
    Console.WriteLine("Area of the rectangle is: " + area);
    Console.WriteLine();
    * menuloop = true;
}
```

```
static void calculateCircle(double pi, double radius, double area, bool menuloop)
```

```
{
    * menuloop = false;
    // user circle radius input
    Console.Write("Enter the circle radius: ");
    radius = double.Parse(Console.ReadLine());
    //circle area calculations
    area = (radius * radius) * pi;
    Console.WriteLine("Area of the circle is: " + area);
    Console.WriteLine();
    * menuloop = true;
}
```

25

No validation on input
 & strange use of
 menuloop . ✓

Exam Marking ACCA4016 – Academic and Employability Skills 12th March 2019

Student: **Callum Hall**

	Exam Date: 12 th March 2019	Marking Date: 15 th March 2019	
Question	Max Possible Marks	Marks Achieved	
1a	4	4	✓
1b	8	6	✓
1c	8	3	✓
2a	20	10	✓
2b	30	25	✓
3a	20	4	✓
3b	10	0	
Total	100	52	✓

Lecturer: G.P. Dawkins

