

CT103: Week 7 Lab Session (09/11/2021)

Note: This assignment will count towards your final grade.

*Make sure you submit your solution by following the “**Submission Instructions**” at the end of this document. You have **until midnight 09/11/2021** to submit your solution on Blackboard.*

Late assignment submissions will receive a penalty.

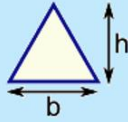
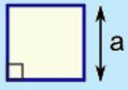
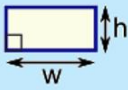
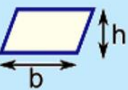
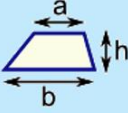

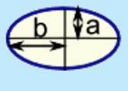
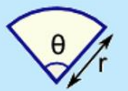
Please make sure you **write comments** explaining what your code does. Start your C program with a **comment stating your; Name, Student ID and Date.**

Write a C program that does the following:

1. Ask the user which shape they would like to calculate the area of: triangle, rectangle, circle, or trapezium. The user's response should be stored as a string, e.g. 'circle'.
Note: See image for instructions on calculating area of each shape. **(33 marks)**
2. The user should then enter the required parameters to calculate the area of the chosen shape. Print the answer to the screen. **(33 marks)**
3. The user should be asked to enter another shape or type 'Done' to end. **(33 marks)**

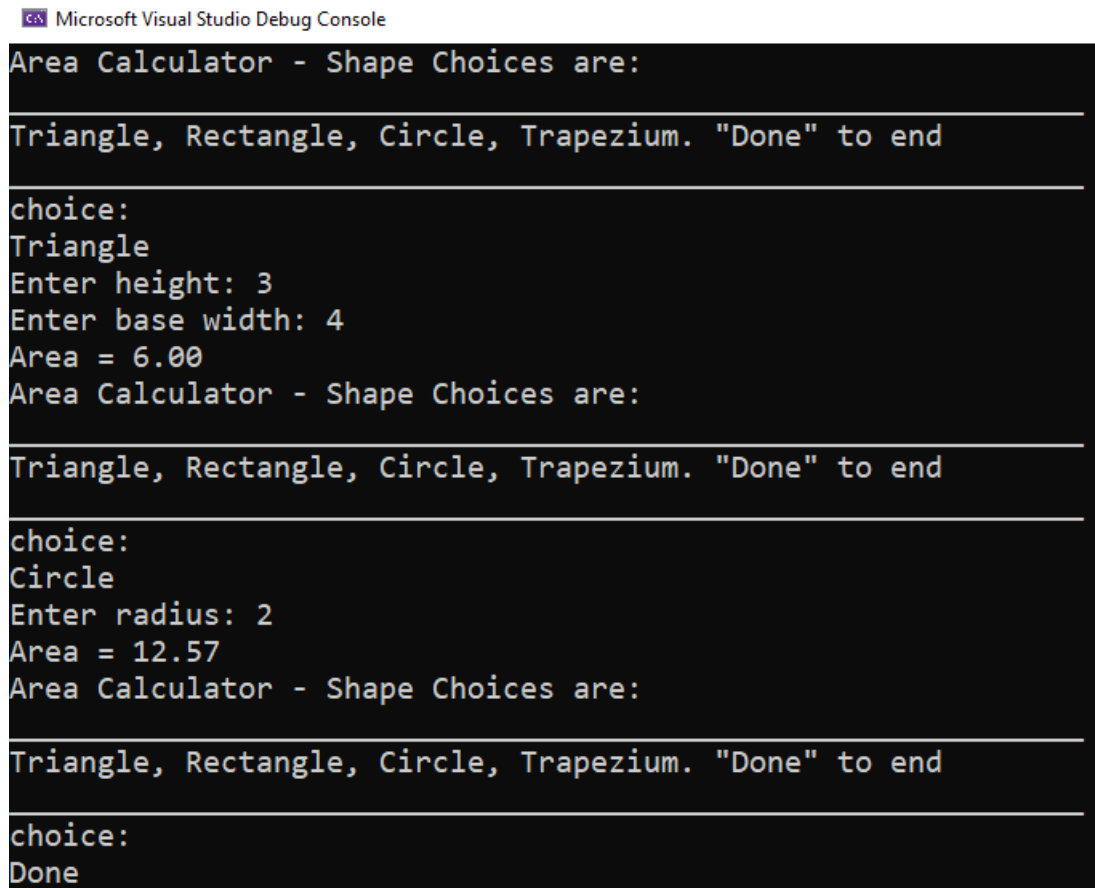
Note: You must do the following:

- Use a **constant** or **macro** instead of a variable once in your program.
- Use **puts** and **gets** at least once in your program.

	<u>Triangle</u> Area = $\frac{1}{2} \times b \times h$ b = base h = vertical height		<u>Square</u> Area = a^2 a = length of side
	<u>Rectangle</u> Area = $w \times h$ w = width h = height		<u>Parallelogram</u> Area = $b \times h$ b = base h = vertical height
	<u>Trapezoid (US)</u> <u>Trapezium (UK)</u> Area = $\frac{1}{2}(a+b) \times h$ h = vertical height		<u>Circle</u> Area = $\pi \times r^2$ Circumference = $2 \times \pi \times r$ r = radius
	<u>Ellipse</u> Area = πab		<u>Sector</u> Area = $\frac{1}{2} \times r^2 \times \theta$ r = radius θ = angle in radians

Your program should output something similar to the following screenshot. You must **enter different values** than those in the screenshot on the right.

This week, you must **upload a single screenshot** with your solution showing your program working for each of the requirements in tasks 1 – 3 above. It should look similar to this screenshot.



```
Microsoft Visual Studio Debug Console
Area Calculator - Shape Choices are:
Triangle, Rectangle, Circle, Trapezium. "Done" to end
choice:
Triangle
Enter height: 3
Enter base width: 4
Area = 6.00
Area Calculator - Shape Choices are:
Triangle, Rectangle, Circle, Trapezium. "Done" to end
choice:
Circle
Enter radius: 2
Area = 12.57
Area Calculator - Shape Choices are:
Triangle, Rectangle, Circle, Trapezium. "Done" to end
choice:
Done
```

Plagiarism Notice:

A definition of plagiarism is passing off the work of another person as one's own.

You are allowed to ask the lab tutors for help, collaborate with your classmates and review online and print resources for high-level problem solving and background research. You are each expected to complete this assignment individually. This means that every line of code and comment in your submission should be written by you alone. Please see the NUI Galway Code of Practice for Dealing with Plagiarism for further information on plagiarism: <https://www.nuigalway.ie/plagiarism/>

Plagiarism is a serious academic offence and may lead to a loss of some or all marks and/or disciplinary proceedings if it is detected in any of your submissions. Students who facilitate others to copy their work are also subject to plagiarism sanctions (including loss of marks), so you should not share your assignment solutions with classmates.

Submission Instructions:

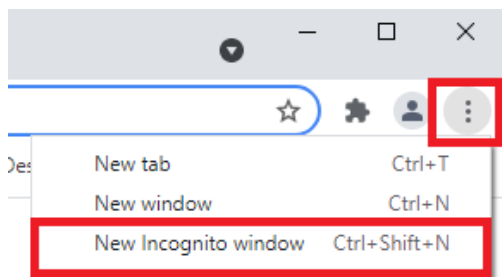
Please do the following to submit your solutions to the assignment.

- Copy and paste your code into a word document labelled 'AssignmentX_YOURNAME_ID.doc', e.g. 'Assignment6_JoeBloggs_123456789.doc'.
- Make sure to **include screenshots showing your code working** in the .doc file. Use: 'Windows' + 'Shift' + 'S' on your keyboard. On a Mac, you should use the keys: 'shift' + 'command' + '3' or 'shift' + 'command' + '4'.
- Add both: **your .c program and your .doc files** to a folder called 'AssignmentX_YOURNAME_ID_Submission'.
- Zip the folder up and **submit the .zip file on blackboard** under CT103 Assessments. To zip the folder, right click and press 'Send To' then 'Compressed (zipped) folder'. On Mac, right click the folder and press 'Compress'.
- You can access blackboard using the instructions at the bottom of the page.
- If for some reason you still cannot access blackboard. Send your .zip folder to the lab instructors by email.

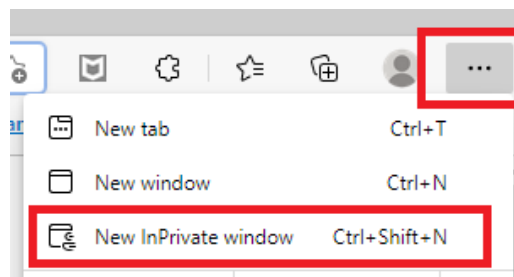
Instructions on how to access to Blackboard.

This is a temporary method of access to Blackboard to work-around access issues arising from the ongoing Security Incident

1. Open a browser window in Incognito/InPrivate mode



Chrome Incognito





Microsoft Edge InPrivate

2. Go to <https://nuigalway.blackboard.com/>
3. Click the "Sign in with a third-party account" drop down and select the appropriate Blackboard SSO option. Staff select "Blackboard SSO Staff". Students select "Blackboard SSO Student"

A screenshot of the Blackboard Learn login page. The page features the 'Blackboard learn+' logo at the top. Below the logo are input fields for 'USERNAME' and 'PASSWORD', followed by a 'Login' button. At the bottom of the page, a dropdown menu is highlighted with a red box. The dropdown is open, showing two options: 'NUI Galway Staff' and 'NUI Galway Student', each preceded by a small icon.

4. You will be directed to the University Office365 login page. Enter your O365 login details and click “Next”. Staff: login using staffid@nuigalway.ie (e.g. 0123456s@nuigalway.ie)
Students: login using your email address (e.g. a.oconnor1@nuigalway.ie)

 **NUI Galway**
OÉ Gaillimh

 Office 365

Sign in

0123456s@nuigalway.ie

[Can't access your account?](#)

[Back](#) [Next](#)

Staff: login using staffid@nuigalway.ie (e.g. 0123456s@nuigalway.ie) Students: login using your email address (e.g. a.oconnor1@nuigalway.ie)

5. Enter your password and click “Sign in”

Enter password


.....

[Forgot my password](#)

[Sign in](#)

6. If your O365 account uses Multi Factor Authentication (MFA) you will be texted a code. Enter the code and click "Verify"

Enter code

 We texted your phone +XXX XXXXXXXX04. Please enter the code to sign in.

Code

☐ Don't ask again for 60 days

Having trouble? [Sign in another way](#)

[More information](#)

Verify

7. On the "Stay signed in" page click "Yes". You will then be logged into your Blackboard account

Stay signed in?

Do this to reduce the number of times you are asked to sign in.

☐ Don't show this again

No

Yes