

## CT103: Week 8 Lab Session (16/11/2021)

*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 6pm Tuesday 16/11/2021 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. Write a function that calculates the volume of water in a swimming pool. The function should read in the following parameters: length (m), width (m) and height (m). The function should calculate the volume of the pool in  $\text{m}^3$ , i.e.  $\text{vol} = L \times W \times H$ . The function should return the volume as a float. The volume should be printed to the screen in the main function. **(25 marks)**
2. Write another function that calculates the mass of the water in the swimming pool. This function should read in the volume of water as a parameter. This function must not return anything. The function must print the total mass of the water to the screen. Note for water:  $\text{mass} = \text{volume} \times 1000$ . **(25 marks)**
3. Write a function that calculates how many barrels can be filled with the water in the swimming pool. Assume the barrel has a capacity of  $0.48 \text{ m}^3$ . Your function should read in the volume of water as a parameter. Your function must return the number of barrels required, rounded to the nearest barrel. The number of barrels should be printed to the screen in the main function. **(25 marks)**
4. Test your program by setting the Length, Width and Height of the pool as the last 3 digits of your student ID. E.g. if my ID was 123456789, then  $L = 7$ ,  $W = 8$  and  $H = 9$ . **(25 marks)**

Your program should output something similar to the following screenshot.

This week, you must **upload a single screenshot** with your solution showing your program working for each of the requirements in tasks 1 – 4 above. It should look similar to this screenshot.

 Microsoft Visual Studio Debug Console

```
The mass of the water is 504000.00 kg.  
Volume = 504.00.  
Barrels = 1050.
```

## 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:

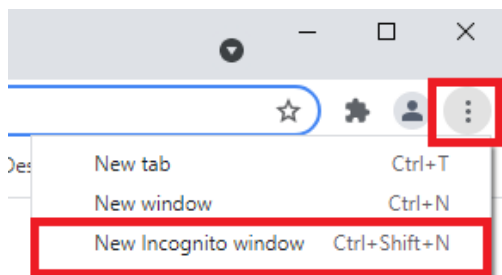
Please do the following to submit your solutions to the assignment.

- 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.

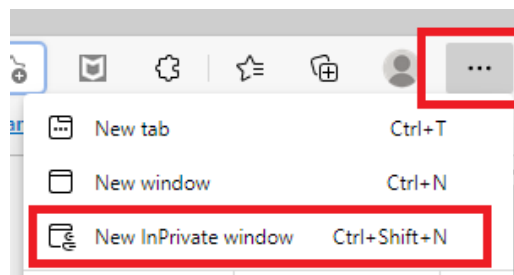
## Instructions on how to access to Blackboard.

**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**

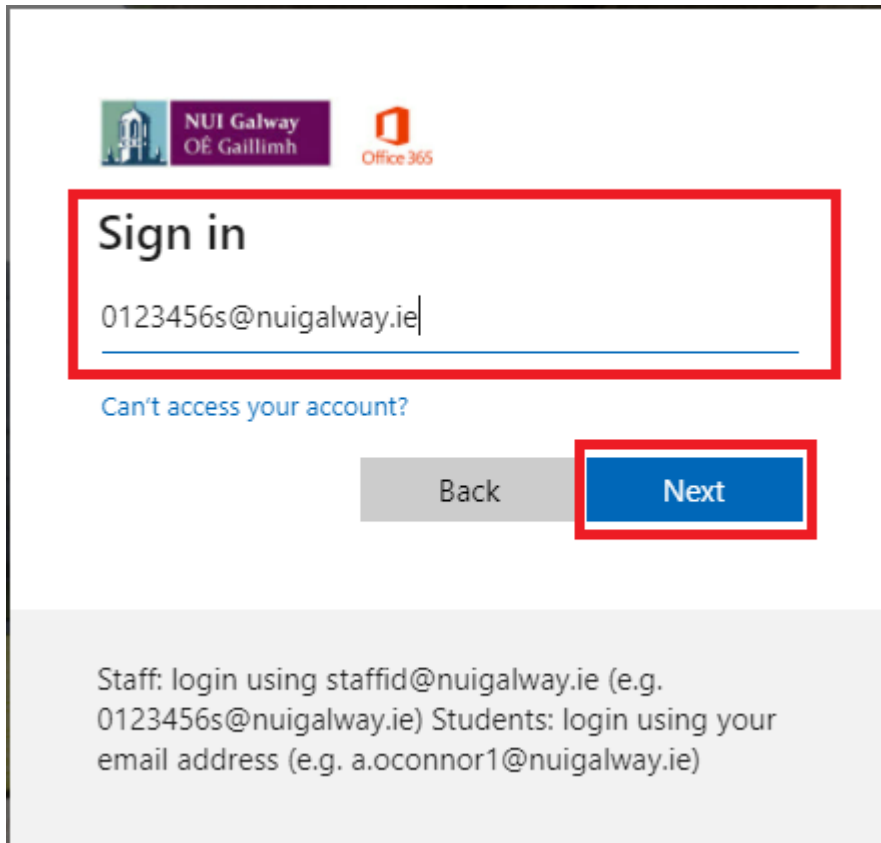



**Microsoft Edge InPrivate**


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 two input fields: 'USERNAME' and 'PASSWORD'. A 'Login' button is positioned below these fields. At the bottom of the page, there is a dropdown menu labeled 'Sign in with a third-party account'. This dropdown menu is open, and its contents are highlighted with a red box. The options visible in the dropdown are '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](mailto:a.oconnor1@nuigalway.ie))



 NUI Galway  
OÉ Gaillimh



## Sign in

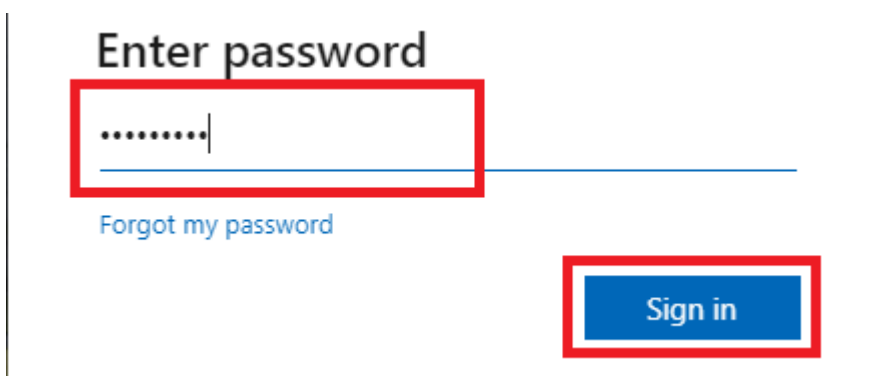
0123456s@nuigalway.ie

[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