

## CT103: Week 15 Lab Session (23/01/2024)

*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 tonight to submit your solution on Canvas**.*

***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**.

Today you will be given a dataset stored in a text (.txt) file for an office supplies company. This file contains all orders made to the office supplies company for 2019.

Write a C program that does the following:

1. You must open a file provided to you called ‘SampleData.txt’ (Figure 1). You should open this file in read mode. Check if the FILE pointer is set correctly. Use either fgetc() or fgets() to read in the content of the file and print it to the screen. (30 marks)
2. Open the same file ‘SampleData.txt’ in read mode again. This time, you need to read in the data from the file and store them in local variables of the appropriate type, e.g. **year** as integer, **region** as string, etc. Print out each line of data to the screen. You must also calculate and print the following to the screen: (40 marks)
  - a. The total income from all orders.
  - b. The average order value.
3. Open the same file ‘SampleData.txt’ in append mode. You must append a new entry to the file: (30 marks)
  - a. Date = Today’s date.
  - b. Region = “Galway”
  - c. Rep = Your surname.
  - d. Item = “Pen”
  - e. Units = The last 2 digits of you student ID (use 50 if yours is ‘00’).
  - f. Unit Cost = 19.99
  - g. Total = Units X unit cost

Your program should output something similar to the following screenshot. You must **upload multiple screenshots** showing your program working for each of the requirements in tasks 1 – 3 above. You should upload a **screenshot showing the updated file**. You should also **include the updated .txt file in your submission folder**. Screenshots should look similar to the screenshots in Figures 2 - 5.

SampleData - Notepad

File Edit Format View Help

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
1/6/18	East	Jones	Pencil	95	1.99	189.05
1/23/18	Central	Kivell	Binder	50	19.99	999.50
2/9/18	Central	Jardine	Pencil	36	4.99	179.64
2/26/18	Central	Gill	Pen	27	19.99	539.73
3/15/18	West	Sorvino	Pencil	56	2.99	167.44
4/1/18	East	Jones	Binder	60	4.99	299.40
4/18/18	Central	Andrews	Pencil	75	1.99	149.25
5/5/18	Central	Jardine	Pencil	90	4.99	449.10
5/22/18	West	Thompson	Pencil	32	1.99	63.68
6/8/18	East	Jones	Binder	60	8.99	539.40
6/25/18	Central	Morgan	Pencil	90	4.99	449.10
7/12/18	East	Howard	Binder	29	1.99	57.71
7/29/18	East	Parent	Binder	81	19.99	41.99
8/15/18	East	Jones	Pencil	35	4.99	174.65
9/1/18	Central	Smith	Desk	2	125.00	250.00
9/18/18	East	Jones	PenSet	16	15.99	255.84
10/5/18	Central	Morgan	Binder	28	8.99	251.72
10/22/18	East	Jones	Pen	64	8.99	575.36
11/8/18	East	Parent	Pen	15	19.99	299.85
11/25/18	Central	Kivell	PenSet	96	4.99	479.04
12/12/18	Central	Smith	Pencil	67	1.29	86.43
12/29/18	East	Parent	PenSet	74	15.99	35.43
1/15/19	Central	Gill	Binder	46	8.99	413.54
2/1/19	Central	Smith	Binder	87	15.00	33.23
2/18/19	East	Jones	Binder	4	4.99	19.96
3/7/19	West	Sorvino	Binder	7	19.99	139.93
3/24/19	Central	Jardine	PenSet	50	4.99	249.50
4/10/19	Central	Andrews	Pencil	66	1.99	131.34
4/27/19	East	Howard	Pen	96	4.99	479.04
5/14/19	Central	Gill	Pencil	53	1.29	68.37
5/31/19	Central	Gill	Binder	80	8.99	719.20
6/17/19	Central	Kivell	Desk	5	125.00	625.00
7/4/19	East	Jones	PenSet	62	4.99	309.38

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Figure 1: Original Dataset

Microsoft Visual Studio Debug Console

----- Part 1 -----

OrderDate	Region	Rep	Item	Units	Unit Cost	Total
1/6/18	East	Jones	Pencil	95	1.99	189.05
1/23/18	Central	Kivell	Binder	50	19.99	999.50
2/9/18	Central	Jardine	Pencil	36	4.99	179.64
2/26/18	Central	Gill	Pen	27	19.99	539.73
3/15/18	West	Sorvino	Pencil	56	2.99	167.44
4/1/18	East	Jones	Binder	60	4.99	299.40
4/18/18	Central	Andrews	Pencil	75	1.99	149.25
5/5/18	Central	Jardine	Pencil	90	4.99	449.10
5/22/18	West	Thompson	Pencil	32	1.99	63.68
6/8/18	East	Jones	Binder	60	8.99	539.40
6/25/18	Central	Morgan	Pencil	90	4.99	449.10
7/12/18	East	Howard	Binder	29	1.99	57.71
7/29/18	East	Parent	Binder	81	19.99	41.99
8/15/18	East	Jones	Pencil	35	4.99	174.65
9/1/18	Central	Smith	Desk	2	125.00	250.00
9/18/18	East	Jones	PenSet	16	15.99	255.84
10/5/18	Central	Morgan	Binder	28	8.99	251.72

Figure 2: Part 1 Output

```

Microsoft Visual Studio Debug Console
11/17/19      Central Jardine Binder 11      4.99    54.89
12/4/19      Central Jardine Binder 94      19.99   21.01
12/21/19      Central Andrews Binder 28      4.99   139.72
----- Part 2 -----
OrderDate      Region  Rep    Item    Units  Unit Cost    Total
1/6/18         East   Jones  Pencil  95      1.99  189.05
1/23/18        Central      Kivell Binder  50      19.99    999.50
2/9/18         Central      Jardine Pencil  36      4.99   179.64
2/26/18        Central      Gill   Pen    27      19.99   539.73
3/15/18        West   Sorvino Pencil  56      2.99   167.44
4/1/18         East   Jones  Binder  60      4.99   299.40
4/18/18        Central      Andrews Pencil  75      1.99   149.25
5/5/18         Central      Jardine Pencil  90      4.99   449.10
5/22/18        West   Thompson Pencil  32      1.99    63.68
6/8/18         East   Jones  Binder  60      8.99   539.40
6/25/18        Central      Morgan Pencil  90      4.99   449.10

```

Figure 3: Part 2 Output

```

Microsoft Visual Studio Debug Console
12/21/19      Central      Andrews Binder 28      4.99  139.72
12/21/19      Central      Andrews Binder 28      4.99  139.72
Total order income = 11868.40 euro.
Average order value = 269.74 euro.
----- Part 3 -----
File updated

```

Figure 4: Part 2 and 3 Output

```

SampleData - Notepad
File Edit Format View Help
11/17/19      Central Jardine Binder 11      4.99    54.89
12/4/19      Central Jardine Binder 94      19.99   21.01
12/21/19      Central Andrews Binder 28      4.99   139.72
1/24/2022     Galway  Smith   Pen    50      19.99   999.50

```

Figure 5: Updated Text File

## 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 University of Galway Code of Practice for Dealing with Plagiarism for further information on plagiarism:

<https://www.universityofgalway.ie/media/registrar/policiesmay2023/QA220-Academic-Integrity-Policy-v2.0-Sept-2023.pdf>

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. 'Assignment7\_JoeBloggs\_123456789.doc'.
- Make sure to **include screenshots of 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 Canvas** 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'.
- If for some reason you still cannot access Canvas. Send your .zip folder to the lab instructors by email. They will be available for the duration of the lab.