

**YEAR:** 2022  
**SEMESTER:** 1  
**ASSESSMENT:** Online Test 2

<b>SUBJECT NAME:</b>	PRINCIPLES OF PROGRAMMING
<b>SUBJECT CODE:</b>	PPBF15D / PPG115D / PPGF15D
<b>QUALIFICATION(S):</b>	DIPLOMA : INFORMATICS

**PAPER DESCRIPTION:** Computer Based      **DURATION:** 2,5 HOURS      **PAPER:** Only

#### SPECIAL REQUIREMENTS

- ☐ NONE
- ☐ NON-PROGRAMMABLE POCKET CALCULATOR
- ☐ SCIENTIFIC CALCULATOR
- ☐ COMPUTER ANSWER SHEET
- ☐ GRAPH PAPER
- ☐ DRAWING INSTRUMENTS

**OTHER:**

**INSTRUCTIONS TO CANDIDATES:** ANSWER ALL QUESTIONS

THIS TEST IS TO BE ANSWERED ON <https://ec.tut.ac.za>.  
WHEN YOU ARE DONE. GIVE YOUR ANSWER SCRIPT BACK TO THE  
INVIGILATOR AND SUBMIT YOUR FILE.

**TOTAL NUMBER OF PAGES INCLUDING COVER PAGE:** 5

<b>EXAMINER:</b>	<b>FULL MARKS:</b> 40
<b>MODERATOR:</b>	<b>TOTAL MARKS:</b> 40
	<b>STUDENT TOTAL:</b> ____
	<b>STUDENT %:</b> ____

**INSTRUCTIONS FOR ANSWERING QUESTION 1:**

1. Read through the question before you start coding.
2. Write meaningful comments for your coding.
3. Remember to **SAVE REGULARLY!** No marks will be assigned if an answer is lost due to incorrect saving methods and no extra time will be granted if work is not saved and there is a power failure or another kind of problem.
4. Create a folder on the D-drive (not the C-drive). Call this folder your student number. Save your work in this folder from the start. You must upload your work from this folder into EC. Use instructions on the last page to upload this question.

**QUESTION 1**

[40]

You are requested by Joe's Chisa Nyama in Welkom to develop a java program to determine the invoice amount when customers are making orders.

The program should prompt for the customer's **first name & surname**, accept the **code** for the user's choice of food on the menu (refer to table 1.1 below for menu) and should also prompt user for the quantity of **food required**, determine and display the **total amount** due for the items.

The program should iterate (loop) for more items to be bought until the program is terminate by user input (-1 to exit).

The program must include the following functions (as shown in table 1.1):

1. main function
2. calculatePrice
3. calculateGrandTotal and
4. printReport function.

**Table 1.1 [Function Description]**

No	Method Name	Description	Marks
1	Main()	<ol style="list-style-type: none"><li>1. A main function that prompts for the user to enter the client's first name and surname (as per sample output).</li><li>2. Display the food menu (as per sample output) and accept user choice.</li><li>3. Validates the user choice (for 1, 2 or 3) and prompts to choice again if invalid choice is entered.</li></ol>	29

		<div><div><div>4. Invokes the calculate Price function to calculate the price.</div><div>5. Invokes the calculate Grand Total function calculate the grand total for the invoice.</div><div>6. Display the ordered food as per sample output 1 and 2.</div><div>7. Invokes the print Report function to display the total invoice report.</div></div><div><div>Table 1.1[Menu]</div><table><tr><th>Menu</th><th>Price</th></tr><tr><td>Full Chicken</td><td>R150.00</td></tr><tr><td>Half Chicken</td><td>R120.00</td></tr><tr><td>Quarter Chicken</td><td>R90.00</td></tr><tr><td>Chicken Burger</td><td>R55.00</td></tr></table></div></div>	Menu	Price	Full Chicken	R150.00	Half Chicken	R120.00	Quarter Chicken	R90.00	Chicken Burger	R55.00	
Menu	Price												
Full Chicken	R150.00												
Half Chicken	R120.00												
Quarter Chicken	R90.00												
Chicken Burger	R55.00												
2	calculatePrice	A function that receives two parameters namely unit price and quantity, calculate and return the total price.	3										
3	calculateGrandTotal	A function that receives two parameters namely total Invoice amount and the Total price, calculate and return the accumulated total invoice amount.	2										
4	printReport	The function that receives three parameters namely accumulated total invoice, customer first name and surname. Display the invoice report (as per sample 1 and 2) but doesn't return any value.	6										

The grand total for all items ordered all bought items should be displayed at the end of the program as shown in the screen shoot below (sample output 1 and 2).

**Figure 1.1[Sample input and output]**

```
C:\Users\MPapo.MPapo-nb\Desktop\JavaExample>javac OnlineTest2.java
C:\Users\MPapo.MPapo-nb\Desktop\JavaExample>java OnlineTest2
Enter Client Firstname:Zakhele
Enter Client Surname:Chabalala
Please select from the Menu:
Enter 1 for Full Chicken
Enter 2 for Half Chicken
Enter 3 for Quarter Chicken
Enter 4 for Chicken Burger
Enter -1 to Terminate <to issue an Invoice>
1
Enter the number items needed:
3
Ordered :3 Full Chicken @ R150.0 each.
Please select from the Menu:
Enter 1 for Full Chicken
Enter 2 for Half Chicken
Enter 3 for Quarter Chicken
Enter 4 for Chicken Burger
Enter -1 to Terminate <to issue an Invoice>
4
Enter the number items needed:
2
Ordered :2 Chicken Burger @ R55.0 each.
Please select from the Menu:
Enter 1 for Full Chicken
Enter 2 for Half Chicken
Enter 3 for Quarter Chicken
Enter 4 for Chicken Burger
Enter -1 to Terminate <to issue an Invoice>
-1
#####
Invoice for Chabalala Z
The total invoice amount is: R560.0
#####
```

**When you are done use the following steps to submit your answer:**

1. Save all your files.
2. Open the **browser**.
3. Type <https://ec.tut.ac.za> in the address field of the browser and press enter.
4. Click **Login**.
5. Type in student number for user name and if you are using EC for the first time you must use your student number as your password.
6. Alternatively you must enter your password.
7. Click **Login button**.
8. Click [**Continue**]
9. Select [**Student**]
10. Select [**Tests**]
11. Select [**Webtest 4**]
12. Type or Select **your subject code** into the first text field.

13. Type or Select **20221** into the second text field.
14. Type or Select into the third text field (The "Y" must be a capital letter).
15. Click "**Next**"
16. Click on the "**Write**" button
17. Click on "**[Start]**" and you will be in the test
18. Click on **[Section]** on the test
19. For each question, copy your C++ source code into each space provided