Worksheet Answers by Robert Myers

Worksheet Week 6, 03 - Sandwich Order Calculator

Predict

Take a look at the code below. Read it carefully and try to make a prediction about what might happen when this code is executed. Think about the different inputs that could be used with this program.

```
1  total_cost = 0.00
2  sugar_tax = 0.50
3  print("Sandwich or Wrap?")
4  bread_type = input()
5  print("Meat, Vegetarian or Vegan?")
6  filling_type = input()
7  print("Cookie, Crisps, Fruit or None")
8  pudding = input()
9  print("Fizzy drink, Water, Juice or None")
10 drink = input()
11 if bread_type != "sandwich":
12   total_cost = 2.00
13 else:
14   total_cost = 3.00
15 if filling_type == "vegetarian" or filling_type == "vegan":
16   total_cost = total_cost + 1.00
17 else:
18   total_cost = total_cost + 1.50
19 if pudding == "cookie" and drink == "fizzy drink":
20   total_cost = total_cost + sugar_tax
```

```
21  if pudding == "none" or drink == "none":
22    total_cost = total_cost - 0.50
23  print(f"Your total cost is: £{total_cost}")
```

Enter your prediction here:

Line 1 & 2 define the cost of total cost & sugar tax, line 3 will ask user if they want a sandwich or a wrap, line four will ask them to input their answer, line 5 asks which filling type, which user will input in line 6. Line 7 allows the user to choose a side for their sandwich, they input their answer on line 8 of code, line 9 asks the user about the drink, line 10 is where the user inputs the answer. Line 11 starts to work out the total cost, if the bread type isn't a sandwich then the total cost will increase by £2 whereas if the bread type is a sandwich it will increase by £3, Vegetarian or Vegan fillings add an extra £ to the total in line 15, line 17 and 18 are where the costs are calculated for meat sandwich, line 19 calculates the cost if the user chooses a sugary side and a fizzy drink, this adds the total cost and the sugar tax together to give the final amount in line 23, however if the side/pudding is none and the drink is none then line 22 will execute and 50p will be subtracted from the final cost in line 23.

Run

Open and run the file with this code. Here's a copy of the code if needed.

Was your prediction correct? Did anything unexpected happen? Write down your thoughts below:

It was correct.

Investigate

Questions/activities	Your answers
Which bread type do you need to choose for the total cost to increase by £3.00?	Sandwich

Which filling types can you choose for the total cost to increase by £1.00?

vegetarian or vegan

Which choices lead to a sugar tax being applied?

cookie and fizzy drink

List the two possible choices that you can make to get £0.50 taken off the total cost.

no drink or no snack

On line 21, change the or to an and.
What choices do you now need to make to get £0.50 taken off the total cost?

no drink and no snack

Modify

Modification	Hint
The code only works if you enter the data in lower case. Modify the code so that it converts the input to lowercase automatically.	Think about the techniques that you used in the last few lessons. Revisit old code. E.g. .upper() will convert to uppercase.
Add in an option for if they would like an extra sauce.	Look at the original lines 3 and 4 for sample code.
Add in an option for if they would like an extra salad.	

Add in some code to increase the total cost by £1 if they choose an extra sauce AND an extra salad.

Look at the original line 19 for sample code.

Please enter your modified code below:

```
1   total_cost = 0.00
2   sugar_tax = 0.50
3   print("Sandwich or Wrap?")
4   bread_type = input().lower()
5   print("Meat, Vegetarian or Vegan?")
6   filling_type = input().lower()
7   print("Would you like extra sauce?")
8   extra_sauce=input().lower()
9   print("Would you like extra salad?")
10  extra_salad=input().lower()
11  print("Cookie, Crisps, Fruit or None")
12  pudding = input().lower()
13  print("Fizzy drink, Water, Juice or None")
14  drink = input().lower()
15  if bread_type != "sandwich":
16    total_cost = 2.00
17  else:
18    total_cost = 3.00
19  if filling_type == "vegetarian" or filling_type == "vegan":
20    total_cost = total_cost + 1.00
21  else:
22    total_cost = total_cost + 1.50
23  if extra_sauce=="yes" and extra_salad=="yes":
```

```
24      total_cost = total_cost + 1.00
25  if pudding == "cookie" or drink == "fizzy drink":
26    total_cost = total_cost + sugar_tax
27  if pudding == "none" and drink == "none":
28    total_cost = total_cost - 0.50
29  print(f"Your total cost is: £{total_cost}")
```

Make

A pizza restaurant would like you to create a program that works out the total cost for each pizza that they sell.

Here is a breakdown of their charges:

Base options	
Thick crust	£8.00
Thin crust	£10.00

Size options	
8 inch	No additional charge
10 inch	No additional charge
12 inch	£2 additional charge
14 inch	£2 additional charge
18 inch	£2 additional charge

Cheese

Cheese is included but there is a discount of £0.50 if you choose no cheese.

Type	
Margarita	+ £0.00
Vegetable	+ £1.00
Vegan	+ £1.00
Hawaiian	+ £2.00

Meat feast	+ £2.00

Voucher code

If the customer buys an 18-inch pizza and has the voucher code “FunFriday”, then they get £2.00 off their pizza.

Task 1: Which pizza?

- Create a series of print statements and inputs that will allow the customer to type in their pizza requirements
- Test your code using the example input/outputs below

Example

Note: Use this example to help you test your program. Given the input you see in this sample interaction, this is the output your program should produce.

The user is prompted about their base choice	Would you like a thin or thick crust?
The user enters a response	thick
The user is prompted about their pizza size	Pick a pizza size from 8, 10, 12, 14 or 18 inches
The user enters a response	14
The user is prompted if they would like cheese	Would you like cheese? Y/N
The user enters a response	Y
The user is prompted about the pizza type	Which pizza type would you like? Margherita, Vegetable, Vegan, Hawaiian or Meat Feast
The user enters a response	margherita
The user is prompted about a voucher code	If you have a voucher code, enter it now Press enter to skip
The user enters a response	FunFriday
The program ends	>>>

Sample code block:

```
1  print("Thin or thick crust?")
2  base = input()
```

Common errors:

- Capital P used for print
- Brackets missing from start or end of text
- Speech marks missing from start or end of text
- Brackets missing at the end of the input

Task 2: Calculate the base cost

- Make sure that a total_cost variable has been created for the total cost of the pizza
- Create an if statement that will apply £10 if their pizza is thin and £8 if it is thick
- Use a print statement to print the total_cost at the end of the code block so that you can test that the code is working

Tip: Test it with both inputs. What is the total_cost when the user enters thick and what is the total_cost when the user enters thin?

Sample code block:

```
1  total_cost = XXXXXXXX
2  if base == "thin":
3      total_cost = total_cost + XXXXXXXX
4  else:
5      total_cost = XXXXXXXX
6  # for testing
7  print(total_cost)
```

Common errors:

- Upper case I is used for if
- One = sign is used instead of ==
- Colon : missing at the end of the if
- Capital E used for else
- Indents/spaces have been missed
- Quotations missed around the choice in the condition
- Choice in the condition is written in uppercase but .lower() has been used

Task 3: Add the pizza size cost

- There are just two different costs for the size options. If the pizza is larger than 10 inches, then an additional charge of £2 is applied. Create an if statement that will apply this charge based on this condition.
- Use a print statement to print the total cost and test your code.

Sample code block:

```
1  if size > 10:
2      XXXXXXXX
```

Task 4: Cheese or no cheese

- If the cheese is not equal to yes, then a discount of 50 pence is applied to the total cost. Create an if statement that will perform this calculation based on the condition.

Sample code block:

```
1  if cheese != "y":
2      XXXXXXXX
```

Task 5: Pizza types

- There are three different pricing options for the pizza. The margherita pizza doesn't have an additional charge, so decide if this needs to be part of one of your conditions.
- If the pizza is vegetable or vegan, then there is an additional charge of £1.
- If the pizza is Hawaiian or meat feast, then there is an additional charge of £2.
- Decide what if statements and conditions you will need to apply these costs.
- Test your code by using a print statement to print the total cost. Remember to test all possible inputs.

Task 6: The voucher code

- The voucher code can be applied when the customer purchases an 18-inch pizza and has typed in the correct code which is FunFriday. Create an if statement that checks that both conditions are true and then applies the £2 discount.

Task 7: Display the total cost

- Repeat the order back to the customer and reveal the total cost of the pizza

Testing your code

- Test your code by entering all of the different possible scenarios for ordering a pizza
- Fix any errors that might occur
- Remember to use .lower() or .upper() where required

Here is a sample testing table that could be used to check the output based on certain inputs.

Example

Note: Use this example to help you test your program. Given the input you see in this sample interaction, this is the output your program should produce.

The user is prompted about their base choice	Would you like a thin or thick crust?
The user enters a response	thin
The user is prompted about their pizza size	Pick a pizza size from 8, 10, 12, 14 or 18 inches
The user enters a response	12
The user is prompted if they would like cheese	Would you like cheese? Y/N
The user enters a response	Y

The user is prompted about the pizza type	Which pizza type would you like? Margherita, Vegetable, Vegan, Hawaiian or Meat Feast
The user enters a response	margarita
The user is prompted about a voucher code	If you have a voucher code, enter it now Press enter to skip
The user enters a response	FunFriday
The order is displayed back to the user with the total cost displayed	Your thin crust 12 inch margherita pizza will cost £12.00

Please enter your code below:

```
1  print("Would you like a thin or thick crust?")
2  base = input().strip().lower()
3  print("Pick a pizza size from 8, 10, 12, 14 or 18 inches")
4  size = int(input().strip())
5  print("Would you like cheese? Y/N")
6  cheese = input().strip().lower()
7  print("Which pizza type would you like? Margherita, Vegetable, Vegan,
   Hawaiian or Meat Feast")
8  pizza_type = input().strip().lower()
9  print("If you have a voucher code, enter it now. Press enter to skip.")
10 voucher = input().strip()
11 if base == 'thin':
12     total_cost = 10.0
13 else:
14     total_cost = 8.0
15 if size > 10:
16     total_cost += 2
17 if cheese != 'y':
```

```
18      total_cost -= 0.5
19  if pizza_type in ['vegetable', 'vegan']:
20      total_cost += 1
21  elif pizza_type in ['hawaiian', 'meat feast']:
22      total_cost += 2
23  if size == 18 and voucher == 'FunFriday':
24      total_cost -= 2
25  total_cost = max(total_cost, 0)
26  print(f"Your {base} crust {size} inch {pizza_type} pizza will cost £
    {total_cost:.2f}")
```