Split my bill

Predict

Take a look at the code on the page below. Read it carefully and try to make a prediction about what might happen when this code is executed.

```
print("---Welcome to Split My Bill---")
print("What is the total bill?")
bill_total = float(input())
print("How many people are sharing?")
people = int(input())
print("What percentage tip would you like to leave?")
tip_percentage = int(input())

percentage_decimal = tip_percentage / 100
tip_total = bill_total * percentage_decimal
bill_total = bill_total + tip_total

cost_per_person = bill_total / people

print(f"Total bill including tip is £{bill_total}")
print(f"Total cost per person is £{cost_per_person}")
```

Write down your prediction below:

Run

Open and **run** the file with this code. Here's a copy of the program (https://replit.com/@awade05/splitmybill#main.py).

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

Investigate

Questions/activities	Your answers ▽
What is the first question that is asked by the program?	
What data type is being used for the `bill_total`?	
Why is this data type needed for the `bill_total`?	
On line 5, what data type is being used for the number of people?	
Why is this data type being used?	
Line 7 is used to enter the percentage tip that the group would like to leave. What is happening at line 9?	
What is calculated at line 10?	
On line 11, the variable `bill_total` is reassigned with the expression `bill_total + tip_total`. Describe what is happening here.	
What type of error occurs (runtime/syntax/logic) when you enter `hello` for the first question?	
What could you do to avoid this error from occurring?	

Modify

Modification	Hint

Lines 9 to 11 contain three separate arithmetic expressions that calculate the final total bill. Use your knowledge of BIDMAS to write a single expression that performs the same calculation.	Try writing the expression on a piece of paper first and testing it out with a calculator.
	
	Think about what will need to be calculated first and how you can use BIDMAS to make this happen.
	
	Use # hashtags in front of the original three lines of code so that you can read them for reference whilst testing your new line of code.
	
	`#percentage_decimal = tip_percentage / 100`
	
	`#tip_total = bill_total * percentage_decimal`
	
	`#bill_total = bill_total + tip_total`
	
	Test the code using simple numbers like 100 for the bill, 4 people, and 10 percent tip. This will make it easier to check for errors by performing the calculations in your head.

Brackets are important!

It is important that numbers are entered by the user instead of text. Add data validation checks at each data entry point. This will help to make the program more robust.

Here is a reminder of the ‘try and except’ code that you saw in lesson 4:

```
print("Enter a number")

try:

      number = int(input())

except ValueError:

      print("You must enter a
number")

      number = int(input())
```

Make

Due to the success of the ‘Split my bill’ app, you have been asked to create a new app called ‘Split my pizza’. This will tell the user how to evenly divide a pizza between their group of friends.

The app should:

- Ask for the number of slices on the pizza
- Ask how many people are sharing the pizza
- Reveal how many slices each
- Reveal if there will be slices remaining

Hint: You will need to use mod `%` and integer division `//` for this program. Here is an example of integer division and mod being used for counters. You could apply this to your own solution:

```
counters_each = 10//3

counters_remaining = 10%3
```

Explorer task

The app could also:

- Incorporate the ‘Split my bill’ code by working out how much each person needs to pay for their share of the pizza