## Programming basics

**Task 1**

Run the code below and answer the following questions:

* What value has the variable **item\_price** in the beginning of the program? \_\_\_\_\_\_\_\_\_
* What value does **item\_price** have after the user submits a new price? \_\_\_\_\_\_\_\_\_
* What value will **item\_price** have if we close the program and run it again? \_\_\_\_\_\_\_\_
* What is the value of the constant pi? \_\_\_\_\_\_\_\_\_

#Variables and Constants

import math

item\_price = 35

print("The price of the item is:", item\_price)

item\_price = int(input("What is the new price? "))

print("The new price is:", item\_price)

print("The mathematical constant pi is equal to: ", math.pi)

print("You do not need to assign a value to pi to return it's value.")

**Task 2**

* Fill in the missing code below and add comments that clarify the instructions.
* Write the code in a text file and save it as ‘Arithmetic Operations.py’.
* Run the code 2 times and write the results:

|  |  |  |  |
| --- | --- | --- | --- |
| # | input | pound\_notes | remainder |
| 1. |  |  |  |
| 2. |  |  |  |

* How can we rewrite the code using an assignment operator, so as to use one less variable? In which case it is better to use this technique?

#Arithmetic Operators

item\_price = 35

print("The price of the item is:", item\_price)

add\_price = int(input("How much would you like to add to the price? "))

total\_price = item\_price + add\_price

print("The new price is:", total\_price)

# calculates the number of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

pound\_notes = total\_price // 20

# calculates the remaining money that a customer has to pay in other than 20 pound notes

remainder = total\_price \_\_\_\_

print("You can pay by using "+ \_\_\_\_\_\_\_\_\_\_ +" £20 notes. This way you will have "+ str(remainder) +" pounds remaining.")

**Task 3**

* Adapt the code above as to accept a new price with decimal values and not to display the message about the remainder if it is zero.

# if the remainder is 0 do not display the remainder amount

if \_\_\_\_\_\_\_\_\_\_\_\_:

print("You can pay by using "+ \_\_\_\_\_\_\_\_\_\_ +" £20 notes. This way you will have "+ str(remainder) +" pounds remaining.")

else:

print("You can pay by using "+ str(pound\_notes) +" £20 notes")

* Adapt the code above as to display a notification message if the number of £20 notes is above 10.

if \_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_:

print("You can pay by using "+ \_\_\_\_\_\_\_\_\_ +" £20 notes. This way you will have "+ str(remainder) +" pounds remaining.")

elif \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:

print("You can pay by using "+ str(pound\_notes) +" £20 notes")

else:

print("There is a limit of 10 £20 notes for each transaction")