

Python Programming Challenges

Home Learning

Practising Python & Planning Programs using Pseudocode

Name		Group	
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Chall. No.	Title/Topic	Completed as home learning (tick)	Completed in homework catch up (tick)	Any errors? (Yes/ No)	How hard did you find this? (1 being easy, 5 being hard)	Do you need further practice in this? (Yes / No)
1	Piggybank Type casting, maths operators					
2	Times tables Variables, inputs, while loops					
3	Vending machine Lists, inputs, variables, nested selection statements,					

Instructions:

1. For each task, you must plan the program using pseudocode BEFORE you create it in class
2. When you have created the program in Python, you must then annotate anything in your pseudocode that was incorrect – use a different colour pen to do this
3. Complete a self review for each task: (see below for how to complete this)

	Your response
Completed successfully?	Yes or no
Was your pseudocode plan:	Fully correct <u>Mostly correct</u> A bit correct Not at all correct
Did you have any errors?	Yes – syntax errors (write in the error) or No
How did you solve them?	How did you solve your errors/solve the problem? Explain what you did and use examples of code
What did you find easy/difficult?	What was hard/did you struggle with?
Did you work with anyone to complete this challenge?	Yes - write their name No

Home learning challenge 1: Piggybank

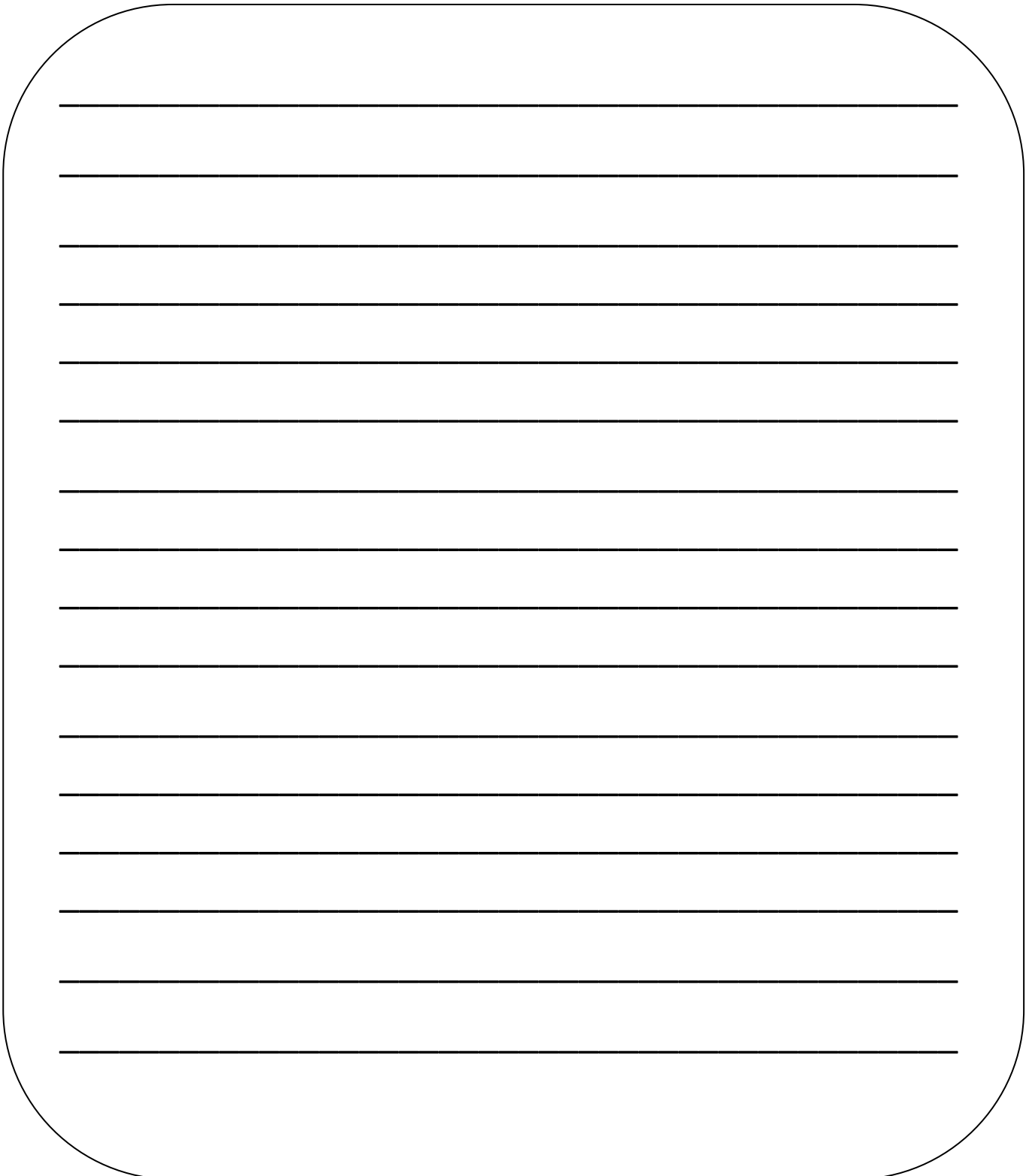
Remember that `input()` always returns a string. You need to use type casting to convert a string (`str`) to an integer (`int`) or integer to a string.

Challenge:

Write a program that helps the user to add up the coins in their piggy bank. The program should ask:

“How many pennies”, “How many two pences”, “How many 5 pences” etc. Then it should give the total value of the piggy bank.

Pseudocode:



A large rounded rectangular box with a thin black border, containing 20 horizontal lines for writing pseudocode. The lines are evenly spaced and extend across most of the width of the box.

A large rounded rectangular box containing 15 horizontal lines for writing.

	Your response			
Completed successfully?				
Was your pseudocode plan:	Fully correct	Mostly correct	A bit correct	Not at all correct
Did you have any errors? What?				
How did you solve them?				
What did you find easy/ difficult?				
Did you work with anyone to complete this challenge?				

Home learning challenge 2: Times table

Write a program to print a multiplication table (a times table). At the start it should ask the user which number they want to see the times table for by asking "Which times table would you like?"

Hints: you will need to use 2 variables and one of these will be the user input (the times table wanted).

Example output: Which times table would you like?

5

Here's your table:

5 x 1 = 5.....

Pseudocode:



A large rounded rectangular box containing 15 horizontal lines for writing.

	Your response			
Completed successfully?				
Was your pseudocode plan:	Fully correct	Mostly correct	A bit correct	Not at all correct
Did you have any errors? What?				
How did you solve them?				
What did you find easy/ difficult?				
Did you work with anyone to complete this challenge?				

Home learning challenge 3: Vending machine

Write a program to simulate a vending machine. You should be able to put money in, select a product and then output the product and any change left over. The program should begin by asking the user "How much money have you put in the machine?"

Hints: you will need to use 4 variables and one of these will be the user input (How much money have you put in the machine).

Example output: How much money have you put in the machine?

2.00

You can choose from: Coke, Fanta, Sprite

Enter the item of your choice:

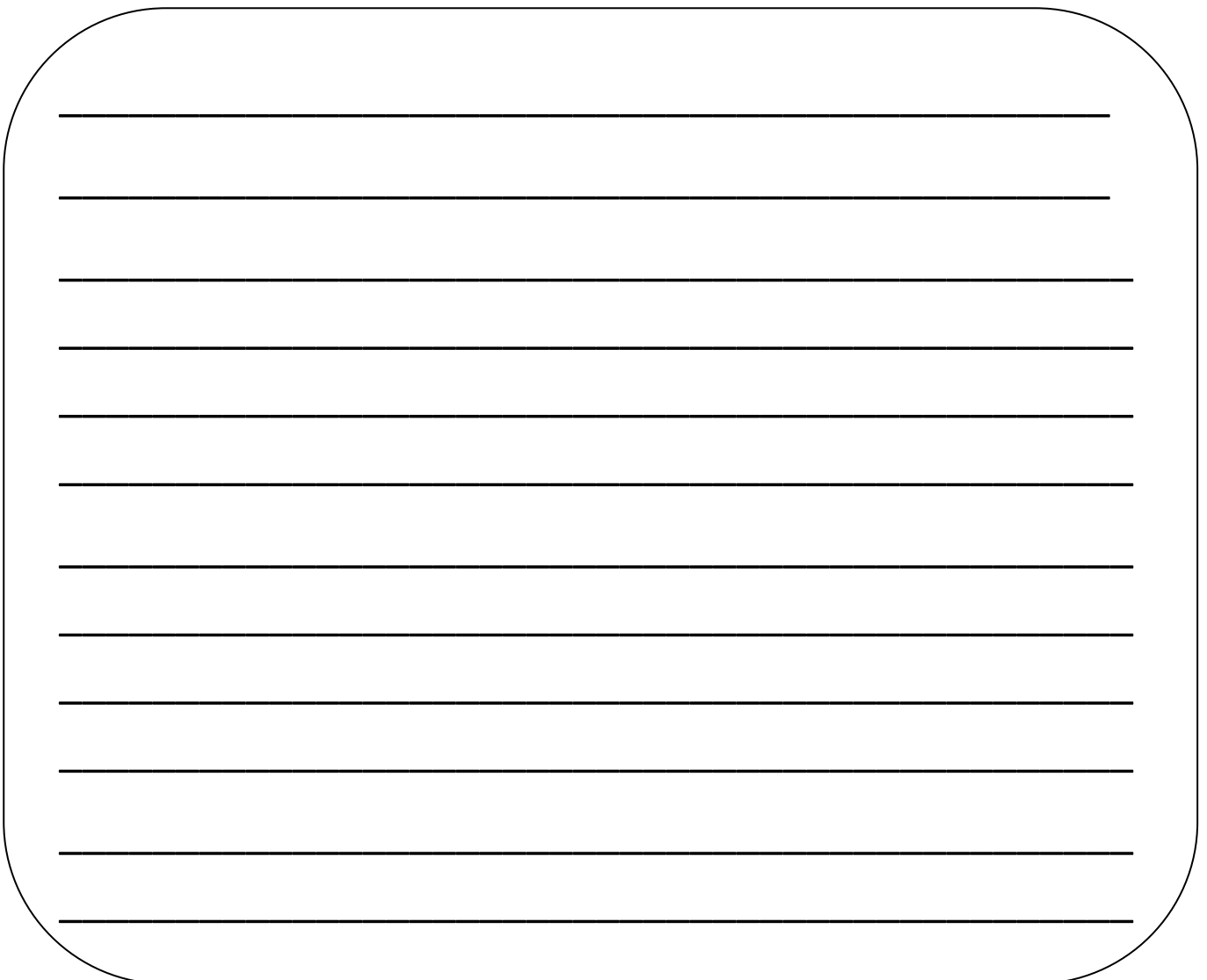
Coke

Here is your Coke

Your change is £1.00

Don't forget float() will change a string to a floating point number

Pseudocode:



A large rounded rectangular box containing 15 horizontal lines for writing pseudocode.

A large rounded rectangular box containing 15 horizontal lines for writing.

	Your response			
Completed successfully?				
Was your pseudocode plan:	Fully correct	Mostly correct	A bit correct	Not at all correct
Did you have any errors? What?				
How did you solve them?				
What did you find easy/ difficult?				
Did you work with anyone to complete this challenge?				

Continue here if you need more space for your pseudocode:

Begin by writing the challenge number that you are continuing from.

A large rounded rectangular box containing 20 horizontal lines for writing pseudocode.