Task 2 – Programming with your Raspberry Pi

This tutorial lets you create a murder/mystery with code. It demonstrates the use of simple programming constructs, such as if/else statements, to start programming in the Python programming language.

IDLE is an Integrated Development Environment for Python. You can load IDLE3 by clicking on the Main Menu (Raspberry symbol at top left hand corner of screen) followed by Programming and then selecting Python 3 (IDLE).

When the Python Shell window has loaded, click on the File menu and select New File. This will open the text editor window where you can write, save and test your program code. Save this empty file as mystery.py by clicking on File and choosing Save As.

In order to interact, the machine should have a way of displaying information, etc. The Python print function is used to print text to the screen so that the user can read it.

In the text editor window type:

```
print("Hello there")
```

Save the file by clicking on File and choosing Save. Next run the program by clicking on Run and choosing Run Module. You will see the words "Hello there" appear in the Python Shell window.

Now to create a more interactive experience the user can be asked their name to personalise the output. Change the code to:

```
name = input("What is your name? ")
print("Hello " + name)
```

Save and run as before and observe the output after your interaction with it as a user.
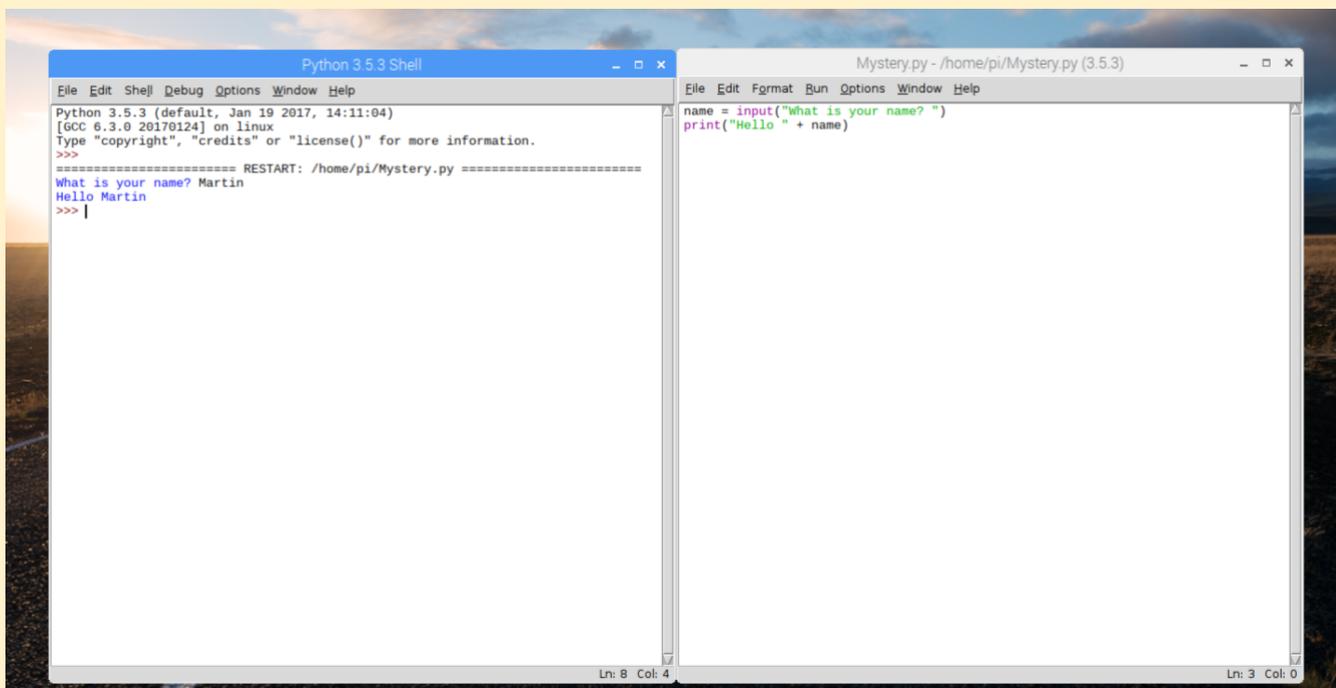
Here "name" is a variable that is used to hold the user"s name when it is input. Create a new variable to determine the gender of the user called "gender".

Now the program has the gender of the user it can be used to customise the murder/mystery by adopting the correct pronoun; he, she or it. If statement are used: Underneath the code you currently have written add the following lines

```
if gender == "female":
    pronoun = "she"
elif gender = "male":
    pronoun = "he"
else:
    pronoun = "it"
```

 Here in answer to the question "Are you male or female?" the corresponding pronoun is set, using if, elif (else if) and else.

Save your work using File and Save again.

Lists are a very important structure in computer programs. In Python lists are defined using square brackets and assigning a name to the list, for example: *vowels = ["a","e","i","o","u"].*

List can be created to construct our murder/mystery.

Add the following lines to your code so far:

actor = ["Miss Scarlett","Col. Mustard","Mrs White","Rev. Green","Mrs Peacock","Prof. Plum"]

weapon = ["Candlestick","Knife","Lead Pipe","Revolver","Rope","Spanner"]

room = [“Kitchen”,”Dining Room”,”Conservatory”,”Cellar”,”Lounge”,”Hall”,”Study”]

Different outcomes of the murder/mystery can be constructed using random outcome. First the module to allow Python to apply randomness needs to be specified in your program. At the top of your program before all the code you have written type:

import random

Now underneath all the code you have written so far add the lines:

actor_name = random.choice(actor)

murder_weapon = random.choice(weapon)

crime_scene = random.choice(room)

The murder mystery can now be constructed by creating a variable to hold the murder mystery story. Add the line:

mystery = “In the manor house the world famous detective “ + name + “ was investigating the murder of “ + actor_name + “ who was found lying dead in the “ + crime_scene + “ having been assaulted with a “ + murder_weapon + “. “ + name + “ was deliberating over the clues and was sure that “ + pronoun + “ could work out who had committed the evil crime.”

Finally use the first function you looked at to print your mystery. To the end of your program add:

print(mystery)

Now you can Save and Run the file as before. If it does not work check your code for errors, correct them and Save and Run again until you are satisfied with the output. This is called debugging your code.

Now try creating another story using similar techniques. You could increase randomisation, add more interactivity to the story by adding clues and eventually create a text based game. The main thing is to practise using Python and become proficient in understanding the coding of the software.

The code and example output is shown:

Mystery.py - /home/pi/Mystery.py (3.5.3)

File Edit Format Run Options Window Help

```python
import random

name = input("What is your name? ")
print("Hello " + name)
gender = input("Are you male or female? ")
if gender == "female":
        pronoun = "she"
elif gender == "male":
        pronoun = "he"
else:
        pronoun = "it"
actor = ["Miss Scarlett","Col. Mustard","Mrs White","Rev. Green","Mrs Peacock","
weapon = ["Candlestick","Knife","Lead Pipe","Revolver","Rope","Spanner"]
room = ["Kitchen","Dining Room","Conservatory","Cellar","Lounge","Hall","Study"]
actor_name = random.choice(actor)
murder_weapon = random.choice(weapon)
crime_scene= random.choice(room)
mystery = "In the manor house the world famous detective " + name + " was invest
print(mystery)
```

Ln: 3 Col: 35

Python 3.5.3 Shell

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```
Python 3.5.3 (default, Jan 19 2017, 14:11:04)
[GCC 6.3.0 20170124] on linux
Type "copyright", "credits" or "license()" for more information.
>>>
======================= RESTART: /home/pi/Mystery.py ========================
What is your name? Martin
Hello Martin
Are you male or female? male
In the manor house the world famous detective Martin was investigating the murde
r of  Col. Mustard who was found lying dead in the Study having been assaulted w
ith a  Candlestick.  Martin was deliberating over the clues and was sure that he
 could work out who had committed the evil crime.
>>>
```

Ln: 10 Col: 4