

University of Hull
Department of Computer Science

Wrestling with Python – Week 06
Methods

Vsn. 1.0 Rob Miles 2013

Introduction

Welcome to our Python sessions.

Please follow the instructions carefully. You need to enter your programs exactly as they are written, otherwise they will do the wrong thing, or nothing at all.

In this session you will explore the use of methods in your programs.



This indicates an activity you should perform in at this point in the text. You may be given precise instructions, or you may have to work something out for yourself.

Reading Numbers

A lot of the programs that we have written have to read numbers from the user. Up until now we have just copied the code each time we want to read a number, but there is a better way to do this, which is to write a number reading method and just call that each time the program needs to get a value from the user. This would make the program shorter and easier to maintain, because if we find a problem with the number reading code we just have to fix it once, and then it is fixed for every number read operation.

Using a FetchNumber method

We want a number fetching method that will display a prompt message and perform validation to make sure that the value supplied is not too large or too small. This is how it will be used in the Cinema Entry program

```
FilmNo = FetchNumber("Enter film number : ", 1, 6)
```

The method will repeatedly read numbers from the user of the program until they enter a value which is in the range 1-6. We could use a slightly different call to get the age of the person going to see the film

```
Age = FetchNumber("Enter your age : ", 3, 100)
```

This time the method would display a different prompt and repeatedly ask for values until one was returned in the range 3-100.

The definition of the FetchNumber method

The method has three parameters, that we give names in the method definition:

```
def FetchNumber(prompt, lowValue, highValue):  
    return 1
```

This is not the completed method, it returns 1 every time it is called, but this should show you what the method looks like.



Before you go any further; perform the following:

1. Open your most recent Cinema Entry program.
2. Add a definition for the FetchNumber method above.
3. Fill in the method so that it reads numbers in. Note that the method will have to contain a loop that makes it repeatedly read values while they are invalid.
4. Change the Cinema Entry program so that it uses the new number reading method.

Drawing Rectangles

It might be fun to draw some Rectangles out of * characters:

```
*****
```

```
*****
```

```
*****
```

These have a width and a height. The width of the above rectangle is 5 and the height is 3.



1. Start a brand new Python program.
2. Create the definition for a method called DrawRectangle. It must accept a width and height value for the rectangle to be drawn.
3. Create the body of the method so that it draws the rectangles. You can use an inner for loop to draw a row of * characters and an outer loop to draw a number of rows.

Further Work

Try drawing a triangle instead, a bit like a Christmas tree.....

Rob Miles

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