**Lesson 11 Display Options**

**Looking Good**

So far, whenever you have printed values to the screen, you’ve simply had to have the output the way the computer does it. It is possible to control how the output is formatted so that things are laid out a little more clearly:

You might remember a program like this but now with a twist:

name = input(“Please enter your name: ”)

age = int(input(“Please enter your age: ”))

print(“Hello, %s, you are %i years old” %(name, age))

This will do exactly the same as previously except we have used *placeholders* instead of including the actual variables as part of the print statement. The basic rule to use these is to include a placeholder wherever you want to include a variable and then put the list of variables at the end after a % sign. The place holders use letters according to the data type of the data to be inserted:

%s string

%i integer

%f float

Try this program (don’t worry about what a widget is!):

name = input(“Please enter your name: ”)

quantity = int(input(“How many widgets did you buy?: ”))

price = float(input(“How much did each one cost?: ”))

total = quantity\*price

print(“%s, you bought %i widgets at £%f each”%(name,quantity,price))

print(“That will cost you £%f altogether.” %(total))

Did you notice anything about the way that the variables were displayed? The strings and integers were fine but, because they can be long decimals, floating point numbers are shown with lots of decimals.

We can control how many decimal places are shown. To do this you put a decimal point and then the number of decimal places in front of the letter “f” in a floating point place holder, like this: %.2f.

Change the last two lines of the previous program:

print(“%s, you bought %i widgets at £%.2f each” %(name,quantity,price))

print(“That will cost you £%.2f altogether.” %(total))

**Turning the Tables**

You can also use the % placeholders to lay out tables of text more clearly by putting a whole number in front of the placeholder. This will print the variable in a space that size. This is really useful when you want to show the contents of an array in a table.

Try this program:

timestable = [] #Empty array

timestable.append([0,0])

# Multiply by 0 is always 0!

factor = int(input(“Which times table?: ”))

for count in range(1,13):

result = count\*factor

timestable.append([count,result])

#Append a new row with the multiple and the result

#Now display as a table

print(“+----------+----------+”)

print(“|Multiple |Result |”)

print(“+----------+----------+”)

for count in range(1,13):

print(“|%10i|%10i|” %(count,timestable[count][1]))

print(“+----------+----------+”)

Edit your program so that instead of %10i for each placeholder it says %-10i. What happens?

**Finger pointing Over to You**

Make a new program that asks you to enter the marks for student tests. It should ask you for the student’s name then ask for the result of test 1 and test 2. It should keep asking until you just press Enter at the student’s name. (Hint: while name != “”:)

The students’ names will be stored in an array called students and the scores will be held in a two dimensional array called score.

After all the results are typed in it will then use a for loop to present the results in a table like this showing the total and percentage to 1 decimal place. Both tests are out of 40.

+------------+-------+-------+-------+-------+

|Name |Score 1|Score 2|Total |Percent|

+------------+-------+-------+-------+-------+

|Harry | 23| 32| 55| 68.6|

+------------+-------+-------+-------+-------+

|Karla | 37| 33| 70| 87.5|

etc. etc.