

Python Programming (Part 2)

Programming Recap

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Objectives

To understand the use of variables and prints statements.

To understand the use of conditional scripts (IF, ELIF & ELSE)

To understand the use of For Loops and While Loops

Outcomes

Time

Pupils will complete the following Python Tasks:

Task 1: Inputting Values into Variables and Printing

Task 2: Append Values into Lists and Printing

Task 3: Calculations with inputted Variables

Task 4: IF and Nested Statements

Task 5 & 6: For & While Loops

150

100

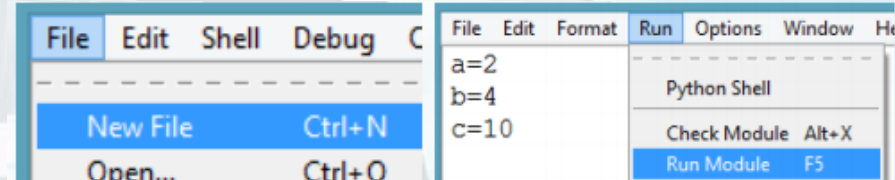
50

0

Task 1: Inputting Values into Variables and Printing



- 1) Click on **File >> New File**
- 2) Write the program below and then **Run Module**.



1. You need to create a simple program to enter data into variables.
2. You will then print the variables as part of sentence.

1

```
firstname=(input("Enter your first name: "))
secondname=(input("Enter your second name: "))
print("Your name is "+firstname+" "+secondname+".")
```

2

```
age=int(input("Enter your age: "))
year=int(input("Enter your year group: "))
print("Your age is "+str(age)+" and your year group is "+str(year)+".")
nextyear=year+1
print("Next year you will be in "+str(nextyear))
agenextyear=age+1
print("Next year your age will be "+str(agenextyear))
```

Age variable needs to be converted in to a string (text)

Task 2: Append Values into Lists and Printing

Lists contain multiple values. You can **append (add)** values to a list. Copy the code below and then run it to **add another students name and marks** to the lists.

list.py - C:\Users\yasar.ahmad\Desktop\list.py (3.6.2)

File Edit Format Run Options Window Help

```
names=["Bob", "Billy"]
englishmarks=[20,23]
mathsmarks=[40,54]
```

```
names.append(input("Enter names "))
englishmarks.append(int(input("Enter English Mark ")))
mathsmarks.append(int(input("Enter Maths Mark ")))
```

```
print (names)
print (englishmarks)
print (mathsmarks)
```

```
Enter names James
Enter English Mark 78
Enter Maths Mark 87
['Bob', 'Billy', 'James']
[20, 23, 78]
[40, 54, 87]
```

James and his **marks** have been **added** to the **lists**.

Task 3: Calculations with inputted Variables

Create the following programs. The variables will be used as part of calculations.

```
number1=int(input("Enter your first number "))
number2=int(input("Enter your second number "))
total=number1+number2

print("Your First Number is "+str(number1))
print("Your second Number is "+str(number2))
print("The numbers added together are "+str(total))
```

Number1 and Number2 will be added in the total variable

```
lenght=int(input("Enter the length of your shape "))
width=int(input("Enter the width of your shape "))
area=lenght*width

print("The lenght of the shape is "+str(lenght))
print("The width of the shape is "+str(width))
print("The area of the shape is "+str(area))
```

Length and width multiplied for in the area variable

Task 4: IF and Nested Statements

Create the following programs with conditional scripts.

```
name=(input("Enter your name: "))
print (name)

hours=int(input("How many hours do you work in a week: "))
print (hours)

if hours <15:
    print ("You work "+str(hours)+" hours and you a Part Time Employee.")
else:
    print ("You work "+str(hours)+" hours and you a Full Time Employee.")
```

```
ptpay=5
ftpay=10
name=(input("Enter your name: "))
hours=int(input("How many hours do you work per week: "))

if hours <15:
    jobtype = "Part Time"
else:
    jobtype = "Full Time"

if jobtype == "Part Time":
    weeklypay = hours*ptpay
else:
    weeklypay = hours*ftpay

print ("Your name is "+name+" and you are a "+jobtype+" employee.")
print ("Your weekly pay is £"+str(weeklypay))
```

= Assigning Variable

== checking to see if values are equal

= Assigning Variable

Extension:

Create your own Python script containing IF, ELIF and ELSE

For Loops - Example

For Loop

The **For loop** will **iterate** through every **item** of the **list**. The loop will **end** once it has gone **through** every item on the list.

Iteration

```
list=(1,2,3,4,5)
for n in list:
    print (n)
```

```
Python 3.4.3 Shell
File Edit Shell Debug Options Window Help
Type "copyright", "credits" or "license"
.
>>> ===== RE
>>>
1
2
3
4
5
>>> |
```

Each item of list
printed

n is a **variable** which will **store** the values of the list.
Each **cycle** of the loop will **print** a number stored in the **variable**.

Task 5: For Loops

The for loop will print every value from the pizza and menu lists.

```
pizza=["1. Papa Johns","2. Pizza Hut","3. Dominos"]  
for p in pizza:  
    print(p)
```

Pizza Takeaway
Options

- 1. Papa Johns
- 2. Pizza Hut
- 3. Dominos

```
option=int(input("Enter your Pizza Takeaway option: "))
```

```
if option ==1:  
    print("Papa Johns Pizzas")
```

```
    menu=["1. Spicy Chicken Ranch", "2. Super Papas", "3. All the Meats"]  
    for m in menu:  
        print(m)
```

Menu Options

```
elif option ==2:  
    print("Pizza Hut")
```

```
elif option ==3:  
    print("Dominos")
```

- 1. Spicy Chicken Ranch
- 2. Super Papas
- 3. All the Meats

```
else:  
    print("You can only enter 1,2 or 3.")
```


While Loops - Example

While Loop

The **While Loop** is based on conditions. If the condition is **True** then the **while Loop** will continue to **loop**.

```
attempt="false"
while attempt=="false":
    try:
        year = int(input("Enter your year group (7,8,9): "))
    except:
        print ("You did not enter a valid year group.")
    else:
        if year == 7:
            print ("You are in Year "+str(year))
            print ("Your Head of Year is Mr Brown.")
            attempt="true"
```

If attempt == False
Loop will continue

If attempt is not equal to False then
the loop will stop

If the correct year is selected then
attempt variable will change to True.

Task 5: While Loops

```
option=0
loop="true"

pizza=["1. Papa Johns", "2. Pizza Hut", "3. Dominos"]
for p in pizza:
    print(p)

while loop=="true":
    try:
        option=int(input("Enter your Pizza Takeaway option: "))

    except:
        print("You did not enter a number.")

    if option ==1:
        loop="false"
        print("Papa Johns Pizzas")
        menu=["1. Spicy Chicken Ranch", "2. Super Papas", "3. All the Meats"]
        for m in menu:
            print(m)

    elif option ==2:
        loop="false"
        print("Pizza Hut")

    elif option ==3:
        loop="false"
        print("Dominos")

    else:
        print("You can only enter 1,2 or 3.")
```

Will continue to loop While the variable loop is set to true.

Try & Except: Will not crash the program if letters are entered.

Loop will break when it changes from true to false.

Extension Task

```
option=0
loop="true"

pizza=["1. Papa Johns","2. Pizza Hut","3. Dominos"]
for p in pizza:
    print(p)

while loop=="true":
    try:
        option=int(input("Enter your Pizza Takeaway option: "))

    except:
        print("You did not enter a number.")

    if option ==1:
        loop="false"
        print("Papa Johns Pizzas")
        menu=["1. Spicy Chicken Ranch", "2. Super Papas", "3. All the Meats"]
        for m in menu:
            print(m)

    elif option ==2:
        loop="false"
        print("Pizza Hut")

    elif option ==3:
        loop="false"
        print("Dominos")

    else:
        print("You can only enter 1,2 or 3.")
```

1. Create menus for each Pizza Option.
2. Allow the user to input menu option and choose the amount they would like to order.
3. Create a variable for the price.
4. Create a variable for the bill which will multiply the price with the amount.
5. Create a print statement for the bill.

Plenary – Refer to the Lesson Objectives

Objectives

To understand the use of variables and prints statements.

To understand the use of conditional scripts (IF, ELIF & EISE)

To understand the use of For Loops and While Loops

Plenary Task (Q&A)

1. Describe the use of variables in Python.
2. Describe the use of conditional scripts in Python.
3. Describe the use of loops in Python.