N5 Python Quick Guide

Input

```
    #Declare the variables
integerVar = 0 #whole number
floatVar = 0.0 #real number (decimal)
stringVar = "" #stores text

    #Input an integer - whole number
integerVar = int(input("Enter a number"))

    #Input a real number - decimal
floatVar = float(input("Enter a number"))

    #Input a string - text
stringVar = input("Please enter a name")
```

Arithmetic Operators

Operation	Symbol
Addition	+
Subtraction	-
Multiplication	*
Division	/
Exponent	^

Operation	Symbol
Less than	<
Greater than	>
Less than or equal to	<=
Greater than or equal to	>=
Equal	==
Not Equal to	! =

Output

```
#Output string
print("Hello World")

#Output string - concatenate variable
print("Hello" + name)

#Convert number variable to string
print("Pupil test mark " + str(mark))
```

IF with Logical Operators

```
#Logical Operators
# AND - OR - NOT

#AND - Both conditions have to be true
if age >=10 and age <=17:
    print("You should be in school")

#OR - Only one of the conditions needs to be true
if not(guess == 10) or NoOfguesses > 3:
    print("Unlucky - incorrect")

# != also means not equal to.
if guess != 10 or NoOfguesses > 3:
    print("Unlucky - incorrect")
```

Variables

```
#Assigning a Value:
name = "Mr Simpson"

#In a Calculation
answer = number1 + number2
```

Nested IF - elif

```
#Nested ifs
age = 0
group = ""

#Input age as whole number
age = int(input("Please enter your age"))

#Nested ifs
if age > 18:
  group = "adult"
elif age >= 12:
  group = "high school"
elif age >=5:
  group="primary school"
else:
  group="nursery"
#End ifs

print("Your age entered was "+ str(age))
print("Your group is "+ group)
```

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Fixed Loop

```
#Fixed Loops - loop a set number of times

for counter in range(10):
    print("Computing Science is the best")
```

Fixed Loop - Running Total

```
# Keeping a Running Total in loop
total=0

#Start loop
for counter in range(5):
    cost=float(input("Enter the cost"))
    total = total + cost
#End loop
print ("Total Cost is ": + str(total))
```

Conditional Loop

```
#Conditional Loop - continue until
# condition is met

userInput = ""

while userInput != "Y":
    #do something
    userInput =input("Press Y to continue")

#End loop when Y is entered.
```

Predefined Functions

Round function

```
realNumber=0.0
roundedNumber=0.0

realNumber=float(input("Enter a real number"))

#Converts real number to 1 decimal place
roundedNumber=round(realNumber,1)

print("Your number rounded to 1 decimal place is",roundedNumber)
```

Random function

```
#Random Function
import random

randomNum=0

#generates number between 1 and 10.
randomNum=random.randint(1,10)

print("A random number between 1 and 10 is",randomNum)
```

LEN function

```
#LEN Function

word=""
wordLength=0

word=input("Please enter a word ")
#Returns the number of characters in word variable
wordLength=len(word)

print("The word has", wordLength, "characters")
```

Arrays

Creating an Array

```
#Creating an array of 10 items

names=[""]*10 #stores text
age = [0] * 10 # stores whole numbers
price = [0.0] * 10 #stores real numbers


#Setting a value in array
names[2] = "Mr Simpson"
```

Filling an Array

```
#Filling/Populating an array

for counter in range(0,10):
    names[counter]=input("Please enter a name")
```

Display contents of Array

```
#Displaying contents of an array

for counter in range(0,10):
    print(names[counter])
```

A loop must be used to traverse the array.
Remember to include the loop variable e.g. names[counter]

Input Validation

Example 1 - age range 0 to 120

```
#Input Validation - age 0 to 120
age = int(input("Enter your age"))

#Start Conditional loop
while age < 0 or age > 120:
    print("Please re-enter a valid age")
    age = int(input("Enter your age"))

#End loop
```

Example 2 - password length

```
#Input Validation - Length of string
#Password must be between 8 and 15 chars long

password=""
passwordLength=0

password=input("Please enter your password")
passwordLength=len(password)

while passwordLength< 8 or passwordLength > 15:
        print("Password must be 8 to 15 characters")
        password=input("Please re-enter your password")
        passwordLength=len(password)

print("New password accepted")
```

Example 3 - validate strings (yes/no)

```
#Input Validation - only accept yes or no
userInput = input("Would you like to continue (yes/no)")

#Start Conditional loop  != not equal to
while userInput != "yes" and userInput != "no":
    print("Please only enter yes or no")
    userInput = input("Continue? yes or no")

#End loop
```

Example 3 version 2 using not

```
#Input Validation - only accept yes or no
userInput = input("Would you like to continue (yes/no)")

#Start Conditional loop
while not(userInput == "yes" or userInput == "no"):
    print("Please only enter yes or no")
    userInput = input("Continue? yes or no")

#End loop
```