National 5 Python Cheat Sheet

Input And Output

Print a Message

```
print("Hello World")
```

Ask the user for an integer

```
choice = int(input("Enter a number"))
```

Ask the user for a real number

```
choice = float(input("Enter a number"))
```

Ask the user for a string

```
choice = input("Enter a name")
```

Use **concatenation** to display a variable in a message

```
print("Your age is" + str(age))
```

Display a string

```
print("Your name is" + pupilname)
```

Variables

Assigning a variable

```
name = "Mr Hay"
```

Using a variable in a calculation

```
answer = number1 + number2
```

Setting a Boolean value

```
passed = True
```

or

```
passed = False
```

Arrays

Creating an Array with 6 elements

```
marks = [None] * 6
```

Setting the value in a particular element

```
marks[2] = "Joe"
```

Inputting a value into each element

```
for x in range(6):
   marks[x] = int(input("Enter mark"))
```

Displaying the value of each element

```
for x in range(6):
   print(mark[x])
```

Changing each value in an array

```
for x in range(6):
   prices[x] = prices[x] + 5
```

Conditional Statements

Check if a variable is equal to a value

```
if variable == 5:
   print("Is equal to 5")
```

If statement with two possible options

```
grade = 45
if grade >=50:
   print("Pass")
else:
   print("Sorry")
```

If statement with more than two options

```
grade = 45
if grade >=75:
   print("Merit")
elif grade >=50:
   print("Pass")
else:
   print("Sorry")
```

Logical AND

```
if user == "admin" and pass=="letmein":
   print("login")
```

Both must be true

Logical OR

```
if test1 >50 or test2 >50:
   print("you have passed")
```

Only one condition needs to be true

Logical NOT

```
while continue != "Y":
   #do something
   choice = input("Press Y to Continue")
```

Must not be equal to

Less than

```
if variable < 5:
```

More than

```
if variable > 5:
```

More than or equal to

```
if variable >= 5:
```

Less than or equal to

```
if variable <= 5:
```

Not equal to

```
if variable != 5:
```

There can only be one **else**:
You can use **elif** multiple times
You DON'T NEED **else:**

Pre Defined Functions

Choose a random number between 1 and 10

```
import random
randomnumber = random.randint(1,10)
```

Round to 2 decimal places

```
original = 24.54
roundedvar = round(original,2)
```

Round to nearest number with no decimal places

```
original = 24.54
roundedvar = round(original)
```

Get the length of a string

```
myname = "MrHay"
length = len(myname)
```

length = 5

Get the length of an array

```
names = ["Mr H","Miss J", "Mrs R"]
length = len(names)
```

length = 3

Fixed Loops

Run a section of code 6 times

```
for counter in range(6):
   print("Hello")
```

Ask the user how many times to loop

```
loops = input("Enter the number of times")
for x in range(loops):
   print("Hello")
```

Keep a running total within a loop

```
total = 0
for counter in range(5):
   itemweight = int(input("Please enter the weight"))
   total = total + itemweight
```

Conditional Loops and Input Validation

Use of a WHILE loop for input validation

```
age = int(input("Please enter your age"))
while age <= 0:
    age = int(input("Please enter your age"))
    print("Age must be more than 0")
```

Use of a WHILE loop for input validation with array

```
for x in range(len(ages)):
   age[x] = int(input("Please enter your age"))
   while age <= 0:
      print("Age must be more than 0")
      age[x] = int(input("Please enter your age"))
```

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