Python 3 Reference Sheet (Basic)

Variables

```
days = 365
```

Creates a variable called "days" and stores 365 in it.

Casting

```
a = int(b)
c = float(d)
e = str(f)
```

Converts data types.
See **Data types** below.

Input

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

Gets the user to input their name.
Stores it in a variable called "name".

Data types

Integer (int) – Whole numbers.
Floating point (float) – Decimal numbers.
String (str) – Alphanumeric text.
Character (char) – Letters and symbols.
Boolean (bool) – True or False values.

Output

```
print("Hello, World!")
```

Displays "Hello, World!".

```
days = 365
print("There are ", days, "days")
```

Displays "There are 365 days".

IF statement

```
if mark < 50:
    print("Fail")
elif mark < 70:
    print("Pass")
else:
    print("Distinction")
```

1st Condition

2nd Condition (optional)
Can have as many as necessary. ("else if")

Finally (optional)
No condition required.

Outputs "Fail" if mark is below 50.
Outputs "Pass" if mark is between 50 and 70.
Outputs "Distinction" if mark is 70 or above.

Comparison Operators

==	Is equal to
!=	Not equal to
>	Greater than
<	Less than
>=	Greater or equal to
<=	Less than or equal to

Compares two values.
Equates to True or False.

Boolean Operators

x and y	True if x **AND** y are **both** True
x or y	True if **either** x **OR** y are True
not x	True if x is **NOT** True

WHILE loop

```
while distance > 0:
    print("Are we there yet?")
    distance = distance - 1
print("Finally here!")
```

Repeats "Are we there yet?" until distance is equal-to or less-than 0.

Loop body indented

FOR loop

```
total = 0
for x in range(0, 10, 1):
    total = total + 1
print("Total: ", total)
```

x increments from 0 to 9.
Adds 1 to total 10 times, then prints total.

0 – Start value (optional)
10 – Stop value (required)
1 – Step value (optional)

```
for char in "Hello":
    print(char)
```

Prints "H", "e", "l", "l", "o".

Python 3 Reference Sheet (Advanced)

Strings

```
phrase = "Hello, World!"
len(phrase)
phrase[6]
phrase[7:12]
phrase.find(",")
phrase.count("o")
phrase + " Look at me!"
phrase * 2
phrase.upper()
"\n"
"\t"
"\\"
```

Create variable **phrase** to store string “Hello, World!”
Get the length of **phrase**. (13)
Get character at index 6. (space)
Get substring from index 7 to 12. (“World”)
Get the index of the comma (5)
Get the number of “o”’s. (2)
Concatenates two strings. (“Hello, World! Look at me!”)
String multiplication. (“Hello, World!Hello, World!”)
Convert to upper case (“HELLO, WORLD!”)
New line.
Indent (tab).
Single backslash.

Lists

```
numbers = [1, 2, 3, 4, 5]
len(numbers)
numbers[2]
numbers[2:5]
numbers.index(1)
numbers.append(6)
numbers.insert(2, 2.5)
numbers.remove(2)
```

Initialise a list.
Find the length of the list. (5)
Get element at index 2. (3)
Get sub-list from index 2 to 5. ([3, 4, 5])
Get the index of element 1. (0)
Add 6 to the list. ([1, 2, 3, 4, 5, 6])
Insert 2.5 at index 2. ([1, 2, 2.5, 3, 4, 5, 6])
Removes first 2 from the list. ([1, 2.5, 3, 4, 5, 6])

Reading from a file

```
file = open("filename.txt", "r")
lines = file.readlines()
file.close()
# process each line individually
for i in range(len(lines)):
    line = lines[i]
    data = line.split(",")
    if data[0] == "Pink Floyd":
        break
```

Opens “filename.txt” in “r” read mode.
Reads the file, stores as list of strings.
Closes the file.
This is a comment explaining the next code block.
Create loop, `i` goes from 0 to the length of the list.
Save the current line as “`line`”.
Split the line up into a list, separating at commas.
Query first item in the line.
Exit FOR loop.

Writing to a file

```
file = open("filename.txt", "w")
file.write("Hello, World!")
file.close()

file = open("filename.txt", "a")
file.write("Hello, World!")
file.close()
```

Opens (creates) “filename.txt” in “w” write mode.
Writes “Hello, World!” to the file. Overwrites existing text.
Closes the file.

Opens “filename.txt” in “a” append mode.
Adds “Hello, World!” to the end of the text file.
Closes the file.