Data Science INF111 Cheat Sheet

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Basics | Data Types & Collections

Integers	`-2, -1, 0, 1, 2, 3, 4, 5`
Floats	`-1.0, --0.5, 0.0, 0.5`
Strings	`'a', 'aa', 'Hello!'`
Lists	`['John', 'Peter', 'Debora']`
Tuples	`('table', 'chair', 'rack')`
	Tuples are immutable objects, Lists are mutable.
Sets	A set is an unordered collection with no duplicate elements
	Don't use empty curly braces { } or you will get an empty dictionary
	`s = {1, 2, 3, 2, 3, 4}` | *`# {1, 2, 3, 4}`*
Dictio-naries	`my_cat = { 'size': 'fat'}`

Basics | Operators [a = 5, b = 10]

Multiplication	*
Addition	+
Subtraction	-
Division	/
Exponent	**
Integer Division	//
Modulus / Remainder	%
AND	`a AND b`
OR	`a OR b`
NOT	`NOT a`
Equal / Not equal	`a == b, a != b`
Bigger / Smaller than	`a > b, a < b`
Bigger / Smaller than or equal to	`a >= b, a <= b`

Basics | Operations

Generic	`sum(), range(), min(), max(), input(""), sorted(), import`
List	`list = [], list[i] = a, list[i], list[i :j:x]`
String	`string[i], string [i:j:x]`
Dictionary	`dict = {}, dict[i] = a, dict[i]`

Conditionals and Control Flow

IF-ELSE Statement

```
name = 'Antony
 if name == 'Debora':
...    print('Hi Debora!')
elif name == 'George':
...    print('Hi George!')
else:
...    print('Who are you?')
```

WHILE Loop

```
spam = 0
 while spam < 5:
...  print( 'Hello, world.')


...  spam = spam + 1
```

FOR Loop

```
#start, stop, step
for i in range(0, 10, 2):
... print(i)
```

Functions | Modularity and Documentation

Schema Example

```
def new_function(x,y):
"""Descripion of the function, Known as Docstring
Arguments:
Returns:
"""
...number = x**y
...print("Hellow World")
...return number
new_function(5,2)
```

Single-line comment	`#in-line`

Functions | Modularity and Documentation (cont)

Multi-line comment	`"""` `lines` `"""`

File Handling

Open / With	The with statement automatically closes the file
Write	`with open(' bac on.t xt',` `... bacon_ fil e.w rit e(`
Append	`with open(' bac on.t xt',` `... bacon_ fil e.w rit e(` `ble')`
Read	`with open(' bac on.t xt')` `... content = bacon_ fil`
	`print(content)` `Hello world!` `Bacon is not a vegetable`

Exception Handling

Try - Except

```
def divide (di vidend , div
... try:
      ... print( div idend /
... except ZeroDi vis ion E
      ... print('You can not
... finally:
      ... print( 'Ex ecution
```

OOP | Classes and Objects

Schema Example	`class Number:`
	`...  def __init __( self, val)`
	`:`
	`...  self.val = val`
	`obj = Number(2)`
	`obj.val`

Inheritance	Using details from a new class without modifying existing classes
Encapsulation	Hiding the details of a class from other objects
Polymorphism	Using common operations in different ways for different data

Common Methods

Strings	`strip(), len(), lower() /upper(), replace(),split(separator)`
Lists	`append (el ement), extend (it era ble), insert(index, element), remove(element), pop(index)`
Sets	`add(el ement), remove(element) union(other_set), inters ect ion (ot her - _set)`
Tuples	`count( value),  index( value)`
Dictionaries	`.keys(), .values(), .items(), get(key, default), pop(key)`

JIC

Pandas	`import pandas as pd`
	`df = pd.Dat aFrame`
	`df.loc[:]/df.iloc[:]`
	`df.describe()`