Week 1-Practice Quiz- Types

1. What is the type of the following: `0`

- **Int**
- float

2. What is the type of the following number: `3.12323`

- Int
- **Float**

3. What is the result of the following: `int(3.99)`

- **3**
- 3.99

Week 1 - Practice Quiz- Expressions, Operations

1. What is the result of the following operation: `11//2`

- **5**
- 5.5
  - ➔ *The symbol // means integer value. Therefore, you must round the result down.*

2.What is the value of x after the following is run:

```
x=4
x=x/2
```

- 4.0
- **2.0**
  - ➔ *The value x=x/2changes the value of x, if x is assigned to itself.*

Week 1- Practice Quiz -Strings

1.What is the result of the following: `Name[0]`

Name= "Michael Jackson"

M	i	c	h	a	e	l		J	a	c	k	s	o	n
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

- "n"
- "i"
- **"M"**

2. What is the result of the following: `Name[-1]`

Name= "Michael Jackson"

M	i	c	h	a	e	l		J	a	c	k	s	o	n
0	1	2	3	4	5	6	7	8	9	10	11	12	13	14

- **"n"**
- "o"
- "M"

3.What is the output of the following: `print("AB\nC\nDE")`

- AB
  CD
  E
- **AB**
  C
  DE
- ABC
  DE
  - ➔ *When the print function encounters a **\n** it displays a **new line***

4. What is the result of following? `"hello Mike".find("Mike")`

- 5
- 6,7,8
- **6**
  - ➔ ***The method find**: finds the starting index of a substring (M is the 6th index):* `h e l l o  M I k e`

Week 1- Graded Quiz

1.What is the value of x after the following lines of code?

```
x=2
x=x+2
```

- **4**
- 2
  - ➔ *The value x=x+2 changes the value of x, if x is assigned to itself. It's helpful to replace the value of x with its current value in this case 2 or x=2+2.*

2. What is the result of the following operation `1+3*2`

- **7**
- 12
- 8
  - ➔ *Python follows the standard mathematical conventions. Like the "**PEMDAS**" rule, where parentheses, exponents, multiplication/division, and addition/subtraction are performed in a specific sequence.*

3. What is the type of the following `"7.1"`

- Float
- **String**

4. What is the result of the following code segment: `int(True)`
- 1
- 0

5. In Python, what is the result of the following operation: `'1'+'2'`
- 3
- '3'
- '12'
  - ➔ *The '+' applied to strings does not add strings but concatenates them*

6.Given `myvar = 'hello'` how would you return `myvar` as uppercase i.e. `MYVAR`
- `len(myvar)`
- `yvar.find('hello')`
- **`myvar.upper()`**

7.What is the result of the following **: str(1)+str(1)** ?
- **'11'**
- 2
  - ➔ *The integers are cast to a string, and the strings are concatenated*

8.What is the result of the following: `"123".replace("12", "ab")`
- **'ab3'**
- '123ab'
  - ➔ *The **method replace** returns a copy of the string with all occurrences of the old substring. **"12" to be replaced with "ab"***

9. In Python 3, what is the type of the variable x after the following: `x=1/1`
- **float**
- int
  - ➔ *In Python 3, regular division always results in a float*

Week 2-Practice Quiz – List and Tuples

1. Consider the following tuple: `say_what=('say',' what', 'you', 'will')` what is the result of the following `say_what[-1]`
- 'you'
- 'say'
- **'will'**
- ' what'

2. Consider the following tuple `A=(1,2,3,4,5)` What is the result of the following: `A[1:4]`
- (2, 3, 4,5)
- **(2, 3, 4)**
- (3, 4,5)

3. Consider the following tuple `A=(1,2,3,4,5),` what is the result of the following: `len(A)`
- 6
- **5**
- 4

4. Consider the following list `B=[1,2,[3,'a'],[4,'b']]` what is the result of the following: `B[3][1]`
- [4,"b"]
- "c"
- **"b"**

5. What is the result of the following operation? `[1,2,3]+[1,1,1]`
- [1, 2, 3, 1, 1, 1]
- [2,3,4]
- TypeError
  - ➔ *The addition operator corresponds to concatenating a list.*

6. What is the length of the list `A = [1]` after the following operation: `A.append([2,3,4,5])`
- 5
- 6
- **2**

```
A = [1]
A.append([2,3,4,5])
A
[1, [2, 3, 4, 5]]
```

  - ➔ ***append** only adds one element to the list*

7. What is the result of the following: `"Hello Mike".split()`
- **`["Hello","Mike"]`**
- `["HelloMike"]`
- `["H"]`

➔ *The **method split** separates a string into a list based on the argument. If there is no argument as in this case the string is split using spaces.*

Week 2- Practice Quiz- Dictionary

1.What are the keys of the following dictionary: `{"a":1,"b":2}`
- `1,2`
- **`"a","b"`**

➔ *The key is the first element separated from its value by a colon.*

2.Consider the following Python Dictionary: `Dict={"A":1,"B":"2","C":[3,3,3],"D":(4,4,4),'E':5,'F':6}`
What is the result of the following operation: `Dict["D"]`
- `[3,3,3]`
- **`(4,4,4)`**

Week 2-Practice Quiz- Set

1.Consider the following set: **`{"A","A"}`** what will the result be when the set is created?
- `{"A","A"}`
- **`{"A"}`**

➔ *There are no duplicate values in a set*

2. What is the result of the following: **`type(set([1,2,3]))`**
- **`set`**
- `list`

```
set([1,2,3])
{1, 2, 3}
type(set([1,2,3]))
set
```

➔ *The function **set** casts the list to a set before we apply the **type** function*

3.What method do you use to add an element to a **set**?
- `append`
- `extend`
- **`add`**

4.What is the result of the following operation : `{'a','b'} &{'a'}`
- `{'a','b'}`
- **`{'a'}`**

➔ *The intersection operation finds the elements that are in both sets.*

Week 2- Graded Quiz

1. Consider the tuple **A=((11,12),[21,22])**, that contains a tuple and list. What is the result of the following operation **A[1]** ?
- **`[21,22]`**
- `(11,12)`
- `((11,12),[21,22])`

2.Consider the tuple **A=((11,12),[21,22])**, that contains a tuple and list. What is the result of the following operation **A[0][1]**?
- `21`
- `11`
- **`12`**

➔ *A[0] corresponds to the first nested tuple; we then access the second element of the tuple using the index 1 i.e A[0][1].*

3.The method append does the following:
- **adds one element to a list**
- merges two lists or insert multiple elements to a list

4.Consider the following list : **A=["hard rock",10,1.2]**
What will list **A** contain affter the following command is run: **`del(A[1])`**
- `[10,1.2]`
- **`["hard rock",1.2]`**
- `["hard rock",10]`

5.If **A** is a list what does the following syntax do **`B=A[:]`**
- assigns list A to list B
- **variable B references a new copy or clone of the original list A**

➔ ***B=A[:]** clones the list A, and assign it to list B*

6.What is the result of the following: **len(("disco",10,1.2, "hard rock",10))** ?
- **5**
- 6
- 0

➔ *There are 5 elements in the tuple so the function len returns 5*

7. Consider the following dictionary: **{ "The Bodyguard":"1992", "Saturday Night Fever":"1977"}**
select the values
- **"1977"**
- **"1992"**
- "The Bodyguard"
- "Saturday Night Fever"

8.The variable **release_year_dict** is a Python Dictionary, what is the result of applying the following method: **release_year_dict.keys()** ?
- **retrieve the keys of the dictionary**
- retrieves, the values of the dictionary

9.Consider the Set: **V={'A','B'}**, what is the result of **V.add('C')**?
- **{'A','B','C'}**
- {'A','B'}

10.What is the result of the following: **'A' in {'A','B'}** ?
- False
- **True**

Week 3 - Practice Quiz -Conditions and Branching

1.What is the result of the following: 1=2
- **SyntaxError:can't assign to literal**
- False
- True
  - ➔ *1==2 False*

Python Errors:		
`frint('Hello')`	**NameError**	`Name 'frint' is not defined`
`y = a + 5`	**NameError**	`Name 'a' is not defined`
`print('Hello'`	**SyntaxError**	`Incomplete input: Parenthesis is not closed`
`1 = 2`	**SyntaxError**	`Should be 1 = = 2`
`int('Hello')`	**ValueError**	`You cannot convert a non-numeric string into an integer`
`my_tuple = (1, 2, 3)` `my_tuple[0]=4`	**TypeError**	`You can't change an element of a tuple.` `You can't change the first index to 4`
`a = [1, 2, 3]` `a[10]`	**IndexError**	`list index out of range`
`1/0`	**ZeroDivisionError**	`when you try to divide by zero.`

2. What is the output of the following code segment:
```
i=6
i<5
```
- True
- **False**
- SyntaxError: can't assign to literal

3. What is the result of the following: 5!=5
- **False**
- True

4. What is the output of the following code segment: 'a'=='A'
- **False**
- True
  - ➔ *the equality operator is case sensitive (comparison between the letters in Python is case-sensitive)*

Character	ASCII code	Character	ASCII code
A	65	a	97
B	66	b	98
Z	90	z	122

5. in the video, if age=18 what would be the result
- **move on**
- you can enter

6.in the video what would be the result if we set the variable age as follows: age= -10
- **go see Meat Loaf**
  move on
- you can enter
  move on

7. what is the result of the following: True or False
- **True, an or statement is only False if all the Boolean values are False**
- False
  - ➔ *or statement is only False if all the Boolean values are False*

Week 3 - Practice Quiz -Loops

1. What will be the output of the following:

```
for x in range(0,3):
      print(x)
```

- **0**
  1
  2
- 0
  1
  2
  3

2. What is the output of the following:

```
for x in ['A','B','C']:
  print(x+'A')
```

- **AA**
  BA
  CA
- A
  B
  C

3.What is the output of the following:

```
for i,x in enumerate(['A','B','C']):
    print(i,x)
```

- **0 A**
  1 B
  2 C
- AA
  BB
  CC

➔ *enumerate: access the **index** and the **elements** of a list*

Week 3 - Practice Quiz -Functions

1.What does the following function return: `len(['A','B',1])`

- **3**
- 2
- 4

2.What does the following function return: `len([sum([0,0,1])])`

- **1**
- 0
- 3

3.What is the value of list L after the following code segment is run :

```
L=[1,3,2]
sorted(L)
```

- L:[1,3,2]
- **L:[1,2,3]**
- L:[0,0,0]

➔ *sorted is a function and returns a new list i.e. [1, 2, 3], not L: [1, 2, 3], but it does not change the list L*

4.From the video what is the value of c after the following:

```
c=add1(2)
c=add1(10)
```

- 3
- **11**
- 14

➔ *when you call the function the second time the value of c is reassigned.*

5.What is the output of the following lines of code:

```
def Print(A):
 for a in A:
    print(a+'1')
Print(['a','b','c'])
```

- a
  b
  c
- **a1**
  b1
  c1
- a1

Week 3 - Practice Quiz -Exception Handling

1.Why do we use exception handlers?

- Write a file
- **Catch errors within a program**
- Read a file
- Terminate a program

2.What is the purpose of a try…except statement?

- Only executes if one condition is true
- Executes the code block only if a certain condition exists
- **Catch and handle exceptions when an error occurs**
- Crash a program when errors occur

Week 3 - Practice Quiz -Objects and Classes

1.What is the type of the following? ["a"]

- str
- **list**

➔ *the "a" is surrounded by brackets so it is a list.*

2.What does a **method** do to an object?

- **Changes or interacts with the object**
- Returns a new values

3.We create the object: `Circle(3,'blue')`.What is the color attribute set to?

- 2
- **'blue'**

4.What is the radius attribute after the following code block is run?

```
RedCircle=Circle(10,'red')
RedCircle.radius=1
```

- 10
- **1**
- 'red'

➔ *The radius attribute of the RedCircle object is set to 1. In the code, you create a Circle object with an initial radius of 10, but then you immediately change the radius attribute of that specific RedCircle object to 1. Therefore, the value of radius for this particular RedCircle instance is 1.*

5.What is the radius attribute after the following code block is run?

```
BlueCircle=Circle(10,'blue')
BlueCircle.add_radius(20)
```

- 10
- 20
- **30**

➔ *Initially, BlueCircle is created with a radius of 10. When add_radius(20) is called on BlueCircle, it will add 20 to the current radius, resulting in a new radius of 30.*

Week 3 - Graded Quiz

1.What is the output of the following code?

```
x='Go'
if(x=='Go'):
  print('Go')
else:
  print('Stop')

print('Mike')
```

- **Go**
  Mike
- Mike
- Stop
  Mike

2.What is the result of the following lines of code?

```
x=1
x>-5
```

- **True**
- False

3.What is the output of the following few lines of code?

```
x=5
while(x!=2):
  print(x)
  x=x-1
```

- **5**
  4
  3
- 5
  4
  3
  2
- the program will never leave the loop

4.What is the result of running the following lines of code ?

```
class Points(object):
  def __init__(self,x,y):

    self.x=x
    self.y=y

  def print_point(self):

    print('x=',self.x,' y=',self.y)

p1= Points("A", "B")
p1.print_point()
```

- x= A
- y= B
- **x= A y= B**

5.What is the output of the following few lines of code?

```
for i,x in enumerate(['A','B','C']):
    print(i,2*x)
```

- **0 AA**
  1 BB
  2 CC

- 0 A
  1 B
  2 C

- 0 A
  2 B
  4 C

6.What is the result of running the following lines of code ?

```
class Points(object):
  def __init__(self,x,y):

    self.x=x
    self.y=y

  def print_point(self):

    print('x=',self.x,' y=',self.y)

p2= Points(1,2)

p2.x = 'A'

p2.print_point()
```

- x= 1 y=2
- **x= A y=2**
- x=A, y=B

7.Consider the function delta, when will the function return a value of 1?

```
def delta(x):
  if x==0:
    y=1
  else:
    y=0
  return(y)
```

- When the input is anything but 0
- When the input is 1
- Never
- **When the input is 0**

```
delta(0)
1
```

8.What is the output of the following lines of code?

```
a=1
def do(x):
    return(x+a)
print(do(1))
```

- **2**
- 1
- NameError: name 'a' is not defined

9.Write a function name **add** that takes two parameter **a** and **b**, then return the output of **a + b**

```
def add(a, b):
    return a + b
```

10.Why is it best practice to have multiple except statements with each type of error labeled correctly?

- Ensure the error is caught so the program will terminate
- **In order to know what type of error was thrown and the location within the program**
- To skip over certain blocks of code during execution
- It is not necessary to label errors

Week 4 - Practice Quiz – Reading and Writing Files with Open

1.What python object do you cast to a dataframe?

- set
- tuple
- **dictionary**

2.How would you access the first-row and first column in the dataframe df?

- **`df.ix[0,0]`**
- `df.ix[0,1]`
- `df.ix[1,0]`

3.What is the proper way to **load** a CSV file using pandas?

- `pandas.from_csv('data.csv')`
- `pandas.load_csv('data.csv')`
- **`pandas.read_csv('data.csv')`**
- `pandas.import_csv('data.csv')`

4.Use this dataframe to answer the question.

	Artist	Album	Released	Length	Genre	Music Recording Sales (millions)	Claimed Sales (millions)	Released.1	Soundtrack	Rating
0	Michael Jackson	Thriller	1982	0:42:19	pop, rock, R&B	46.0	65	30-Nov-82	NaN	10.0
1	AC/DC	Back in Black	1980	0:42:11	hard rock	26.1	50	25-Jul-80	NaN	9.5
2	Pink Floyd	The Dark Side of the Moon	1973	0:42:49	progressive rock	24.2	45	01-Mar-73	NaN	9.0
3	Whitney Houston	The Bodyguard	1992	0:57:44	R&B, soul, pop	27.4	44	17-Nov-92	Y	8.5
4	Meat Loaf	Bat Out of Hell	1977	0:46:33	hard rock, progressive rock	20.6	43	21-Oct-77	NaN	8.0
5	Eagles	Their Greatest Hits (1971-1975)	1976	0:43:08	rock, soft rock, folk rock	32.2	42	17-Feb-76	NaN	7.5
6	Bee Gees	Saturday Night Fever	1977	1:15:54	disco	20.6	40	15-Nov-77	Y	7.0
7	Fleetwood Mac	Rumours	1977	0:40:01	soft rock	27.9	40	04-Feb-77	NaN	6.5

How would you select the Genre **disco**? Select all that apply.

- `df.iloc[6, 'genre']`
- `df.loc[6, 5]`
- **`df.iloc[6, 4]`**
- `df.loc['Bee Gees', 'Genre']`

5.Use this dataframe to answer the question.

	Artist	Album	Released	Length	Genre	Music Recording Sales (millions)	Claimed Sales (millions)	Released.1	Soundtrack	Rating
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7	Fleetwood Mac	Rumours	1977	0:40:01	soft rock	27.9	40	04-Feb-77	NaN	6.5

Which will **NOT** evaluate to 20.6? Select all that apply.

- `df.iloc[4,5]`
- `df.iloc[6,5]`
- **`df.loc[4,'Music Recording Sales']`**
- **`df.iloc[6, 'Music Recording Sales (millions)']`**

6.Use this dataframe to answer the question.

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How do we select Albums **The Dark Side of the Moon** to **Their Greatest Hits** (1971-1975)? Select all that apply.

- `df.iloc[2:5, 'Album']`
- **`df.loc[2:5, 'Album']`**
- **`df.iloc[2:6, 1]`**
- `df.loc[2:5, 1]`

Week 4 - Practice Quiz – Numpy in Python

1.What is the Python library used for scientific computing and is a basis for Pandas?

- Tkinter
- datetime
- Requests
- **Numpy**

2.What attribute is used to retrieve the number of elements in an array?

- **`a.size`**
- `a.ndim`
- `a.shape`
- `a.dtype`

3.How would you change the first element to "10" in this array c:array([100,1,2,3,0])?

- `c[2]=10`
- `c[4]=10`
- **`c[0]=10`**
- `c[1]=10`

4.What attribute is used to return the number of dimensions in an array?

- `a.dtype`
- `a.shape`
- **`a.ndim`**
- `a.size`

Week 4- Graded Quiz

1. What is the result of the following lines of code?

```
a=np.array([0,1])
b=np.array([1,0])
np.dot(a,b)
```

- **0**
- 1
- `array([1,1])`

➔ **np.dot(a, b):** calculates the dot product of the arrays a and b. The **dot product** of two arrays is calculated as the sum of the products of their corresponding elements. In this case, it's (0 * 1) + (1 * 0), which equals 0.

➔ a * b = a[0] * b[0] + a[1] * b[1] + ... + a[n-1] * b[n-1]

➔ The result of np.dot(a, b) is a scalar, which means it's a single value, not an array. It represents the dot product of the two input arrays

2.How do you perform matrix multiplication on the numpy arrays **A** and **B** ?

- **`np.dot(A,B)`**
- A+B
- A*B

3.What values does the variable out take if the following lines of code are run?

```
X=np.array([[1,0,1],[2,2,2]])
out=X[0:2,2]
out
```

- `array([1,0])`
- **`array([1,2])`**
- `array([1,1])`

➔ X is a 2D NumPy array with the following values:
[[1, 0, 1],
[2, 2, 2]]

➔ X[0:2, 2] is a slicing operation that selects a subset of elements from the array X. In this case, it selects all rows from index 0 to 1 (exclusive) and only the element in the third column (index 2) of those rows.

➔ The selected elements are [1, 2], which are the values located in the third column (index 2) of both rows in the original array.
the first index corresponds to the rows the second index corresponds to the columns

4.What is the value of Z after the following code is run?

```
X=np.array([[1,0],[0,1]])
Y=np.array([[2,2],[2,2]])
Z=np.dot(X,Y)
```

- **`array([[2,2],[2,2]])`**
- `array([[2,0],[0,2] ])`
- `array([[3,2],[2,3]])`

➔ the dot function corresponds to matrix multiplication
➔ X is a 2D NumPy array with the following values:
[[1, 0],
[0, 1]]

➔ Y is a 2D NumPy array with the following values:
[[2, 2],
[2, 2]]

➔ Z[i][j] = X[i][0] * Y[0][j] + X[i][1] * Y[1][j]

➔ Z[0][0] = 1*2 + 0*2 = 2
Z[0][1] = 1*2 + 0*2 = 2
Z[1][0] = 0*2 + 1*2 = 2
Z[1][1] = 0*2 + 1*2 = 2

5.Consider the following text file: Example1.txt:

```
This is line 1
This is line 2
This is line 3
```

What is the output of the following lines of code?

```
with open("Example1.txt","r") as File1:
    file_stuff=File1.readline ()
    print(file_stuff)
```

- **This is line 1**
- This is line 1
  This is line 2
  This is line 3
- This is line 1
  This is line 2

➔ *This is because `readline()` reads the first line of the file, including the newline character, and then prints it.*

6.What do the following lines of code do?

```
with open("Example1.txt","r") as file1:
  FileContent=file1.readlines()
  print(FileContent)
```

- **Read the file "Example1.txt"**
- Write to the file "Example1.txt"
- Append the file "Example1.txt"

➔ *"r": read*
➔ *"w": write*
➔ *"a": append*

`'r'`	Read **mode** for reading files
`'w'`	Write **mode** for writing files
`'a'`	Append **mode** for appending

7.What do the following lines of code do?

```
with open("Example.txt","w") as writefile:
  writefile.write("This is line A\n")
  writefile.write("This is line B\n")
```

- Read the file "Example.txt"
- **Write to the file "Example.txt"**
- Append the file "Example.txt"

➔ After running this code, the content of "Example.txt" will be:
This is line A
This is line B
➔ So, the code writes two lines of text to the file "Example.txt."

8.What do the following lines of code do?

```
with open("Example3.txt","w") as file1:
file1.write("This is line C\n")
```

- Read the file "Example3.txt".
- Append the file "Example3.txt".
- **error**

➔ *There is no indent*

9.Consider the dataframe **df**. How would you access the element in the 2nd row and 1st column?

- **`df.iloc[1,0]`**
- `df.iloc[2,1]`
- `df.iloc[0,1]`

10. You learned you can also obtain a series from a dataframe **df**, select the correct way to assign the column with the **header Length** to a pandas series to the variable **x**.

- **`x=df['Length']`**
- `x=df[['Length']]`
- `x=df.[['Length']]`

Week 5 - Practice Quiz – Simple APIs

1.What does API stand for?

- Automatic Program Interaction
- Application Programming Interaction
- Application Process Interface
- **Application Programming Interface**

2. Which data format is commonly found in the HTTP message for API requests?

- HTML
- XML
- YAML
- **JSON**

3.What is the primary purpose of an API?

- To design user interfaces for mobile applications.
- To handle server-side database operations.
- To provide security to web applications.
- **To connect and enable communication between software applications.**

Week 5 - Practice Quiz – REST APIs, Webscraping, and Working with Files

1. What is the function of "GET" in HTTP requests?

- Sends data to create or update a resource
- Deletes a specific resource
- **Carries the request to the client from the requestor**
- Returns the response from the client to the requestor

2.What does URL stand for?

- Uniform Request Location
- **Uniform Resource Locator**
- Unilateral Resistance Locator
- Uniform Resource Learning

3.What does the file extension “csv” stand for?

- **Comma Separated Values**
- Comma Separation Valuations
- Common Separated Variables
- Comma Serrated Values

4.What is webscraping?

- The process to describe communication options
- The process to request and retrieve information from a client
- **The process to extract data from a particular website**
- The process to display all data within a URL

Week 5 - Graded Quiz

1.What are the 3 parts to a response message?

- HTTP headers, blank line, and body
- Encoding, body, and cache
- Bookmarks, history, and security
- **Start or status line, header, and body**

2.What is the purpose of this line of code "table_row=table.find_all(name=’tr’)" used in webscraping?

- It will find all of the data within the table marked with a tag “h1”
- It will find all of the data within the table marked with a tag “a”
- **It will find all of the data within the table marked with a tag “tr”**
- It will find all of the data within the table marked with a tag “p”

3.In what data structure do HTTP responses generally return?

- Nested Lists
- Lists
- Tuples
- **JSON**

4.The Python library we used to plot the chart in video/lab is

- **MatPlotLib**
- PyCoinGecko
- Pandas
- Plotly

Final Exam (Timed Quiz)

1.When slicing in Python what does the "2" in this statement `[0:2]` specify?

- It specifies the position to start the slice
- **It specifies the position to end the slice**
- It specifies the step of the slicing

2.When slicing in Python what does the "2" in `[::2]` specify?

- **It specifies the step of the slicing**
- It specifies the position to end the slice
- It specifies the position to start the slice

➔ Slicing: **(start:stop:step)**, the "step" indicates how many elements you should skip between each element in the slice. In this case, [::2] means you are selecting every second element from the sequence, starting from the beginning (default start) and ending at the end (default end).

3.What is the Python `find()` method used for?

- The method finds the ending index of a substring
- **The method finds the starting index of a substring**
- The method finds every second index of a substring

4.In Python what data type is used to represent text and not numbers?

- float
- int
- **str**

5.What will happen if you cast a float to an integer?

- An error will occur
- **It will remove decimal point**
- Nothing happens

6.What following code segment would produce an output of "0.5"?

- **1/2**
- 1//2

➔ 1 // 2 = 0

7.In Python 3, what is the type of the variable x after the following: `x=2/2`

- int
- **float**

8.What data type must have unique keys?

- List
- Tuple
- **Dictionary**

9.What does the index of "1" correspond to in a list or tuple?

- **The second element**
- The first element
- the third element

10.What does the split() method return from a list of words?

- The list of words in reverse order
- The list in one long string
- **The list of words in a string separated by a delimiter**
- The list of words separated by a colon

➔ A "delimiter" is a character used to separate boundaries within a larger sequence of data. Ex. Comma (,) Delimiter

```
'1,2,3,4'.split(',')  -> ['1', '2', '3', '4']
```

11.Tuples are:

- Mutable
- Unordered
- Not indexed
- **Not mutable** (Immutable =can't be modified)

12.What is a collection that is unordered, unindexed and does not allow duplicate members?

- Tuple
- **Set**
- List

13.What value of x will produce the output?

```
Hi
Mike

x=
if(x!=1):
     print('Hello')
else:
     print('Hi')
print('Mike')
```

- **x=1**
- x=6
- x="7"

14.Why is the “finally” statement used?

- Only execute the remaining code if one condition is false
- **Execute the remaining code no matter the end result**
- Only execute the remaining code if an error occurs
- Only execute the remaining code if no errors occur

➔

```
try:
    # Some code that may raise an exception
    result = 10 / 0  # This will raise a ZeroDivisionError
except ZeroDivisionError:
    print("Error: Division by zero")
finally:
    print("This code will always be executed")

# Output:
# Error: Division by zero
# This code will always be executed
```

15.What add function would return ‘11’ ?

- **`def add(x): return(x+x) add('1')`**
- `def add(x): return(x+x) add(1)`
- `def add(x): return(x+x+x)add('1')`

➔

`def add(x):`
`  return(x+x)`
`add('1')`
	`'11'`

`def add(x):`
`  return(x+x)`
`add(1)`
	`2`

`def add(x):`
`  return(x+x+x)`
`add('1')`
	`'111'`

16.What is the correct way to sort list 'B' using a method? The result should not return a new list, just change the list 'B'.

- **`sorted(B)`**
- `sort(B)`
- `B.sort()`
- `B.sorted()`

17.What segment of code would output the following?

3
6
9

- `A=['1','2','3'] for a in A: print(2*a)`
- **`A=[1,2,3] for a in A: print(3*a)`**
- `A=[1,2,3] for a in A: print(2*a)`

➔

`A=['1','2','3']`
`for a in A:`
`  print(2*a)`
	11
	22
	33

`A=[1,2,3]`
`for a in A:`
`  print(3*a)`
	3
	6
	9

`A=[1,2,3]`
`for a in A:`
`  print(2*a)`
	2
	4
	6

18.What code segment would output the following?

1
3
4

- `for i in range(1,5): if (i!=1): print(i)`
- **`for i in range(1,5): if (i!=2): print(i)`**
- `for i in range(1,5): if (i==2): print(i)`

➔

`for i in range(1,5):`
`  if (i!=1):`
`  print(i)`
	2
	3
	4

`for i in range(1,5):`
`  if (i!=2):`
`  print(i)`
	1
	3
	4

`for i in range(1,5):`
`  if (i==2):`
`  print(i)`
	2

19.What is the width of the rectangle in the class Rectangle?

```
class Rectangle(object):
        def __init__(self,width=2,height =3,color='r'):
                                    self.height=height
                                    self.width=width
                                    self.color=color
    def drawRectangle(self):
                        import matplotlib.pyplot as plt
                        plt.gca().add_patch(plt.Rectangle((0, 0),self.width, self.height ,fc=self.color))
                        plt.axis('scaled')
                        plt.show()
```

- 0
- 3
- **2**

➔ The data attributes are: self.height, self.width, self.color

20.What is the result of the following lines of code?

```
a=np.array([0,1,0,1,0])
b=np.array([1,0,1,0,1])
a/b
```

- array([0.1, 1.0, 0.1, 1.0, 0.1])
- array([1, 1, 1, 1, 1])
- **Division by zero error**

➔

a=np.array([0,1,0,1,0]) b=np.array([1,0,1,0,1]) a/b	array([0., inf, 0., inf, 0.])
a=np.array([0,1,0,1,0]) b=np.array([1,0,1,0,1]) a*b	array([0, 0, 0, 0, 0])

21.What is the result of the following lines of code?

```
a=np.array([1,1,1,1,1])
a+10
```

- **array([11, 11, 11, 11, 11])**
- array([1,1,1,1,1])
- array([10,10,10,10,10])

22.What does the following line of code select along with the headers 'Artist', 'Length' and 'Genre' from the dataframe df?

```
y=df[['Artist','Length','Genre']]
```

- Rows
- The entire dataframe
- **Columns**

23.Consider the file object: File1. How would you print the first two lines of text?

- **for n in range(0,2): print(file1.readline())**
- file1.readline(4)

for n in range(0, 2): print(File1.readline())	This code will read and print the first two lines of text from the file, as it iterates through the loop twice, using File1.readline() to read each line and print it.
file1.readline(4)	attempt to read the first line up to the first 4 characters, but it would not advance to the next line. Therefore, it would only print the first 4 characters of the first line

24.What mode will write text at the end of the existing text in a file?

- Read "r"
- Append "a"
- **Write "w"**

25.What is the extraction of data from a website?

- Data mining
- Web crawling
- **Webscraping**