

## ✓ Question 1

1. print out the datatype for the following variables?

```
a = 123  
b = [1, 2, 3]  
c = "Python programming Language"  
d = (1, 2, 3)  
e = {"A": 1, "B": 2, "C": 3}
```

```
a = 123  
b = [1, 2, 3]  
c = 'Python programming language'  
d = (1, 2, 3)  
e = {"A": 1, "B": 2, "C": 3}  
print(type(a))  
print(type(b))  
print(type(c))  
print(type(d))  
print(type(e))
```

```
↔ <class 'int'>  
   <class 'list'>  
   <class 'str'>  
   <class 'tuple'>  
   <class 'dict'>
```

## ✓ Question 2

2. Do the following conversions and print out their new datatypes.

- 1234 to str
- "iPython" to list
- 23.5 to int
- 45 to float

```
x = str(1234)
h = list('iPython')
b = int(23.5)
n = float(45)
print(x)
print(h)
print(b)
print(n)
```

```
⇒ 1234
   ['i', 'P', 'y', 't', 'h', 'o', 'n']
   23
   45.0
```

### ✓ Question 3

3. Create a dictionary containing the following information (you can just make up the information):
- Name
  - Age
  - Sex
  - Profession
  - Religion
  - Nationality

```
my_profile = {'Name': 'Christy', 'Age': 23, 'Sex': 'F', 'Profession': 'Student', 'Religion': 'Christian'}
print(my_profile)
```

```
⇒ {'Name': 'Christy', 'Age': 23, 'Sex': 'F', 'Profession': 'Student', 'F
```

### ✓ Question 4

4. Consider the Python list below, write a Python code to extract the third to fifth elements. write another code to reverse the list.

```
numbers = [23, 54, 32, 33, 56, 78, 77, 45, 33]
```

```
nums = [23, 54, 32, 33, 56, 78, 77, 45, 33]
ext = nums[2: 5]
print(ext)
reverse = nums[::-1]
print(reverse)
```

⇒ [32, 33, 56]  
[33, 45, 77, 78, 56, 33, 32, 54, 23]

## ✓ Question 5

5. Change the fourth, seventh, and eight elements of the list [24, 56, "programming", "javascript", 56, 54.3, "data analytics", "Argentina"] to "python", "data science", and "Nigeria" respectively.

```
my_list = [24, 56, 'programming', 'javascript', 56, 54.3, 'data analytics', 'Argentina']
my_list[3] = 'python'
my_list[6] = 'data science'
my_list[7] = 'Nigeria'
print(my_list)
```

⇒ [24, 56, 'programming', 'python', 56, 54.3, 'data science', 'Nigeria']

## ✓ Question 6

6. Consider the tuple below, write a Python code to add 'turkey' to the elements.

```
food_items = ('rice', 'meat', 'garri', 'beans')
```

```
food_items = ('rice', 'meat', 'garri', 'beans')
x = list(food_items)
x.append('turkey')
food_items = tuple(x)
print(food_items)
```

⇒ ('rice', 'meat', 'garri', 'beans', 'turkey')

## ✓ Question 7

7. Take two variables `height = 180` and `weight = 75`. Use compound assignment operators to first add 5 to `height` and then subtract 10 from `weight`. Finally, check if `height` is greater than 170 and `weight` is less than 80 using logical operators, printing "Healthy" if both conditions are met.

```
height = 180 + 5
weight = 75 - 10
if height > 170 and weight < 80:
    print('Healthy')
```

➡ Healthy

## ✓ Question 8

8. Check if the list below contains the following fruits ("apple", "guava", "pawpaw", "avocado") and if it does, print a statement indicating that the list contains the fruits. If it doesn't, add the fruit to the list and print the new fruit list and a statement that says the fruit has been added (hint: use the if-else statement).

**NOTE:** Write a different if-else statement for each of the item in this list ("apple", "guava", "pawpaw", "avocado").

```
fruit_list = ["apple", "banana", "orange", "grape", "pineapple", "strawberry", "watermelon", "kiwi",
```

```
fruit_list = ["apple", "banana", "orange", "grape", "pineapple", "strawberry", "watermelon", "kiwi", "p
if 'apple' in fruit_list:
    print('fruit_list contains apple')
else:
    fruit_list.append('apple')
    print('apple has been added to fruit_list')
```

➡ fruit\_list contains apple

```
fruit_list = ["apple", "banana", "orange", "grape", "pineapple", "strawberry", "watermelon", "kiwi", "pawpaw"]
if 'guava' in fruit_list:
    print('fruit_list contains guava')
else:
    fruit_list.append('guava')
    print('guava has been added')
```

↔ guava has been added

```
fruit_list = ["apple", "banana", "orange", "grape", "pineapple", "strawberry", "watermelon", "kiwi", "pawpaw"]
if 'pawpaw' in fruit_list:
    print('fruit_list contains pawpaw')
else:
    fruit_list.append('pawpaw')
    print('pawpaw has been added')
```

↔ pawpaw has been added

```
fruit_list = ["apple", "banana", "orange", "grape", "pineapple", "strawberry", "watermelon", "kiwi", "pawpaw"]
if 'avocado' in fruit_list:
    print('fruit_list contains avocado')
else:
    fruit_list.append('avocado')
    print('avocado has been added')
```

↔ avocado has been added

## ✓ Question 9

9. Write a Python program that takes the following student's exam score below and determines their grade based on the following criteria:

```
student_a_score = 78
student_b_score = 67
student_c_score = 92
```

- If the score is between 90 and 100 (inclusive), print "Grade: A"
- If the score is between 80 and 89 (inclusive), print "Grade: B"
- If the score is between 70 and 79 (inclusive), print "Grade: C"
- If the score is between 60 and 69 (inclusive), print "Grade: D"
- If the score is below 60, print "Grade: F"

Instructions:

- Use an if-elif-else statement to determine the grade based on the score.
- Make separate conditional statements for the three students
- Print the corresponding grade message.

**Hint: Use comparison and logical operators in your "conditional statement"**

```
student_a_score = 78
if student_a_score >= 90 and 100:
    print('student a: Grade A')
elif student_a_score >= 80 and 89:
    print('student a: Grade B')
elif student_a_score >= 70 and 79:
    print('student a: Grade C')
elif student_a_score >= 60 and 69:
    print('student a: Grade D')
else:
    print('student a: Grade F')
```

 student a: Grade C

```
student_b_score = 67
if student_b_score >= 90 and 100:
    print('student b: Grade A')
elif student_b_score >= 80 and 89:
    print('student b: Grade B')
elif student_b_score >= 70 and 79:
    print('student b: Grade C')
elif student_b_score >= 60 and 69:
    print('student b: Grade D')
else:
    print('student b: Grade F')
```

➡ student b: Grade D

```
student_c_score = 92
if student_c_score >= 90 and 100:
    print('student c: Grade A')
elif student_c_score >= 80 and 89:
    print('student c: Grade B')
elif student_c_score >= 70 and 79:
    print('student c: Grade C')
elif student_c_score >= 60 and 69:
    print('student c: Grade D')
else:
    print('student c: Grade F')
```

➡ student c: Grade A

## ✓ Question 10

10a) Given the variables `name = "Alice"` and `age = 30`, use old-style `%` formatting to construct and print the sentence: `"Alice is 30 years old."`

10b) You have the variables `item = "coffee"` and `price = 2.5`. Use the `str.format()` method to format and print the string: `"The price of coffee is 2.5 dollars."` Ensure the item name and price are dynamically inserted into the string.

10c) With the variables `planet = "Mars"` and `distance = 54.6`, use an f-string to print the following statement: `"Mars is 54.6 million kilometers away from Earth."` Embed the variables directly into the string.

```
name = 'Alice'
age = 30
print('%a is %g years old.'%(name, age))
```

⇒ 'Alice' is 30 years old.

```
#str.format
item = 'coffee'
price = 2.5
print('The price of {} is {} dollars'.format(item, price))
```



⇒ The price of coffee is 2.5 dollars.

```
#f-str
planet = 'Mars'
distance = 54.6
print(f'{planet} is {distance} million kilometers away from earth')
```



⇒ Mars is 54.6 million kilometers away from earth

```
name = 'Toke'
age = 45
print('Mrs',name, 'is', str(age), 'years old')
```



⇒ Mrs Toke is 45 years old