Knowledge Check 1

Instructions: Answer the questions below, saving often. Submit your Word document to MyLO for initial feedback, then **discuss** your answers with your tutor in class.

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Question 1

What **data type** is each of the following literal values?

Literal value	Data type
`99`	int
`"2.718"`	string
`-3.6`	float
`False`	boolean
`"alpha"`	string
`1.1`	float
`"False"`	string

Question 2

Given the following variable declarations and initialisations, what is the **value** and **data type** of each of the expressions that follow?

```
a = 42
b = 3
c = 2.71
d = "X"
```

Expression	Value	Type
`25`	25	int
`4.2 * c`	11.38200	float
`a // 5`	8	int
`d + "storm"`	“ Xstorm”	string
`a + 8 * b`	66	int

Question 3

What data type would you use to represent each of the following things? Indicate your choice then provide a brief (1–2 sentence) justification.

1. The total profit of a company for an unspecified quarter
   Answer: total profit represents any amount, which is a number(can be whole or decimal) we will use float to represent it.
2. A randomly generated username in an online game
   Answer: assuming an username can be a mix of alphabets and digits, we will use string for this type of data

Question 4

Create a tracing table showing the execution of the following Python statements.

```
1  alohomora = 16
2  bombarda = 4
3  confringo = 7
4
5  bombarda = alohomora + confringo
6  print(f"bombarda is {bombarda}")
7  confringo = (bombarda + confringo) * alohomora + confringo
```

Answer:

Line	alohomora	bombarda	confringo	output		
1	16					

2		4				
3			7			
5		23				
6				bombarda is 23		
7			487			

Question 5

Create a tracing table showing the execution of the following Python statements.

```
1    i = 14
2    c = "x"
3    s = "echo"
4    combined = f"{c.upper()}{s.lower()}{i + 1}"
5
6    print("Result is", combined)
```

Answer:

Line	i	c	s	combined	output	
1	14					
2		x				
3			echo			
4				Xecho15		
6					Result is Xecho15	

Question 6

Create a tracing table showing the execution of the following Python statements.

```
1     beta = 14
2     print(f"At this point, beta is {beta}")
3     if beta < 10:
4       print("True branch")
5       beta = beta - 12
6     else:
7       print("False branch")
8       beta = beta + 12
9
10    print(f"Finally, beta is {beta}")
```

Answer:

Line	beta	output				
1	14					
2		At this point, beta is 14				
7		False branch				
8	26					
10		Finally, beta is 26				

Question 7

Create a tracing table showing the execution of the following Python statements.

```
1     gamma = 12
2
3     print("Position 1")
4     while gamma <= 10:
5       print("Position 2")
6       gamma += 1
7     print("Position 3")
```

Answer:

Line	gamma	output				

1	12					
3		Position 1				
7		Position 3				

Question 8

Create a tracing table showing the execution of the following Python statements.

```
1    for theta in range(8, 30, 3):
2      print(f"theta is currently {theta}")
```

Answer:

Line	theta	output				
1	8					
2		theta is currently 8				
1	11					

2		theta is currently 11				
1	14					
2		theta is currently 14				
1	17					
2		theta is currently 17				
	20					
		theta is currently 20				
	23					
		theta is currently 23				
	26					
		theta is currently 26				
	29					
		theta is currently 29				