

Activity 2

Decide and Repeat: Controlling Program Flow

Applied Python Programming with AI and Raspberry Pi Interfaces

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Assign: *TBD*

Name: _____

1. True or False

Statement	T/F
The <code>if</code> statement can only be used once in a program.	
Indentation in Python is mandatory and defines the scope of control-flow constructs like <code>if</code> statements.	
The <code>elif</code> statement is used to check multiple conditions.	
The <code>else</code> statement is optional in an <code>if</code> block.	
A loop can be used to repeat a block of code multiple times.	
An <code>else</code> block in an <code>if</code> statement executes only when all preceding <code>if</code> and <code>elif</code> conditions evaluate to <code>False</code> .	
The expression <code>None</code> evaluates as <code>False</code> in a conditional test.	
In Python, <code>if x:</code> treats any nonzero number or non-empty container as <code>True</code> .	

2. What is the output of the following code snippets?

a.

```
1 score = 92
2 if score > 90:
3     print("A-range")
4 print("Done")
```

Output:

b.

```
1 total_purchase = item_price * quantity
2 is_first_time_buyer = True
3
4 if ((total_purchase > 50) and (is_first_time_buyer)):
5     discount = total_purchase * 0.10
6     total_purchase -= discount
7     print("Total purchase after discount:", total_purchase)
8 else:
9     print("Total purchase:", total_purchase)
```

*Output:**Case 1: item_price = 200, quantity = 3**Case 2: item_price = 10, quantity = 4***c.**

```
1 if ((age >= 18) and (math_pt >= 80 or english_pt >= 75)):
2     eligibility = "Eligible for admission"
3 else:
4     eligibility = "Not eligible for admission"
5
6 print(eligibility)
```

*Output:**Case 1: age = 18, math_pt = 85, english_pt = 70**Case 2: age = 17, math_pt = 75, english_pt = 70*

d.

```
1 if age >= 18:
2     if has_id:
3         print("Admitted")
4     else:
5         print("Need ID")
6 else:
7     print("Too young")
```

*Output:**Case 1: age = 17, has_id = True**Case 1: age = 20, has_id = False***e.**

```
1 count = 0
2 while True:
3     count += 2
4     print(count, end=" ")
5     if count >= 6:
6         break
```

*Output:***f.**

```
1 count = 1
2 while True:
3     if (count % 3 == 0):
4         count += 2
5     print(count, end=" ")
6     count += 1
7     if count == 10:
8         break
```

Output:

g.

```
1 if num_items >= 100:
2     price_per_item = 5
3 else:
4     if num_items >= 50:
5         price_per_item = 6
6     else:
7         if num_items >= 20:
8             price_per_item = 7
9         else:
10            price_per_item = 8
11
12 total_cost = num_items * price_per_item
13 print("Total cost for",num_items,"items:", total_cost)
```

*Output:**Case 1: num_items = 5**Case 1: num_items = 25**Case 1: num_items = 50**Case 1: num_items = 500*