Activity 1

Essentials: Grammar, Semantics, and Interaction

Applied Python Programming with AI and Raspberry Pi Interfaces

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Assign: *TBD*

Name: _____

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

a.

```
age = 30
print("Value:", age)
print("Type:", type(age))
years_until_retirement = 65 - age
print("Years until retirement:", years_until_retirement)
```

Output:

b.

```
temperature = 72.5
print("Value:", temperature)
print("Type:", type(temperature))
temp_fahrenheit_to_celsius = (temperature - 32) * 5 / 9
print("Temperature in degree C:", temp_fahrenheit_to_celsius)
```

Output:

c.

```
name = "Alice"
print("Value:", name)
print("Type:", type(name))
greeting = "Hello, " + name + "!"
print(greeting)
```

Output:

d.

```
is_online = True
print("Value:", is_online,)
print("Type:", type(is_online))
can_access = is_online and (age >= 18)
print("Can access content:", can_access)
```

Output:

e.

```
result1 = 2 + 3 * 4
result2 = (2 + 3) * 4
print("The result of 2 + 3 * 4 is ",result1)
print("The result of (2 + 3) * 4 is ",result2)
```

Output:

f.

```
age = 23
years_of_experience = 5
projects_completed = 12
average_score = 87.5

is_eligible_for_bonus = (
    (projects_completed > 10)
    and (average_score >= 85.0)
    and not (years_of_experience < 3)
)

print("Eligible for bonus?", is_eligible_for_bonus)
```

Output:

g.

```
num_1 = 4
num_2 = 9
num_3 = 16

complex_condition = (
    ((num_1 + num_2) * 2) < num_3
    or ((num_3 // num_2) == num_1)
    )and ((num_2 % num_1) != 0)

print("Complex condition result:", complex_condition)
```


Output:

h.

```
value_1 = 4 >= 4
value_2 = (10 % 3) == (4 // 2)
result = value_1 and value_2
print("The result is:", result)
```

Output:

2. Identify the errors, debug the code, and give the output

```
age = "30"
years_worked = 5
experience = age + years_worked

base_salary = 3000
bonus_percent = 10
bonus = base_salary * bonus_percent

first_name = "John"
last_name = "Doe"
complete_name = first_name - last_name

is_active = "true"
has_permission = false
status = is_active and has_permission

tasks_completed = 0
rate_per_task = 50
average_earnings = base_salary / tasks_completed

growth_rate = 1.05 ^ 2
compounded_salary = base_salary * growth_rate

threshold = 100
exceeds_threshold = bonus_percent = threshold

print("Experience:", experience)
print("Calculated Bonus:", bonus)
print("Complete Name:", complete_name)
print("Status:", status)
print("Average Earnings:", average_earnings)
print("Compounded Salary:", compounded_salary)
print("Exceeds Threshold:", exceeds_threshold)
```


Output: