PYTHON SESSSINOL
ASSIGNMENT 1

Q.1. Basic If-Else with List Element
You have a list numbers = [10, 20, 30, 40]. Write a program that checks if the first element of the list is greater than 25. Print "First element is large" if it is, and "First element is small" if it isn't.

#CODE START

```
numbers = [10, 20, 30, 40]


if numbers[0] > 25:
   print("First element is large")
else:
   print("First element is small")
```

OUTPUT

```
First element is small
```

Q.2. Modify List Based on Condition
Given a list scores = [45, 67, 89, 92, 54, 31], write a program that creates a new list. For each score in the original list, if the score is greater than or equal to 50, add "Pass" to the new list. If it's less than 50, add "Fail".

#CODE START

```
scores = [45, 67, 89, 92, 54, 31]
result = []


for score in scores:
   if score >= 50:
      result.append("Pass")
   else:
      result.append("Fail")


print(result)
```

OUTPUT

```
['Fail', 'Pass', 'Pass', 'Pass', 'Pass', 'Fail']
```

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Q.3. Check for an Item in a List (Membership Test)
Ask the user to input their favorite fruit. Check if that fruit is in the predefined list fruits = ['apple', 'banana', 'mango', 'grape']. Print a message saying whether their fruit is on the list or not.

#CODE START

```
fruits = ['apple', 'banana', 'mango', 'grape']


favorite = input("Enter your favorite fruit: ").lower()


if favorite in fruits:
   print(f"Yes! {favorite} is in the list.")
else:
   print(f"Sorry, {favorite} is not in the list.")
```

output

Enter your favorite fruit: apple

Yes! apple is in the list.

Q.4. Conditional Sum of List Elements
Given a list values = [1, -2, 3, -4, 5, 6], write a program that calculates the sum of only the positive numbers in the list. Use a loop and an if statement.

#CODE START

```
values = [1, -2, 3, -4, 5, 6]
total = 0


for num in values:
   if num > 0:
      total += num


print("Sum of positive numbers:", total)
```

OUTPUT

Sum of positive numbers: 15

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Q.5. Find Maximum with Condition
You have a list data = [120, 330, 40, 550, 60]. Find the largest number in the list *that is less than 500*. Print the number. If no number is found, print "No valid number found".

#CODE START

```
data = [120, 330, 40, 550, 60]


largest = None


for num in data:
    if num < 500:
        if largest is None or num > largest:
            largest = num


if largest is not None:
    print("Largest number less than 500 is:", largest)
else:
    print("No valid number found")
```

output

```
Largest number less than 500 is: 330
```

Q.6. Categorize List Elements
Create a list mixed = [12, 'hello', 33, 'world', 7.5, 100]. Write a program that separates this list into two new lists: one for integers and one for strings. Ignore any other data types.

#code start

```
mixed = [12, 'hello', 33, 'world', 7.5, 100]


integers = []
strings = []


for item in mixed:
    if isinstance(item, int):   # check if item is an integer
        integers.append(item)
```

```
    elif isinstance(item, str): # check if item is a string
        strings.append(item)


print("Integers:", integers)
print("Strings:", strings)
```

output

```
Integers: [12, 33, 100]
Strings: ['hello', 'world']
```

Q.7. Nested If with List Index
Given a list my_list = [10, 20, 30, 40, 50] and an index provided by the user. Check if the index is valid for the list. If it is, check if the element at that index is even. Print "Valid index, even number", "Valid index, odd number", or "Invalid index" based on the checks.

#CODE SART

```
my_list = [10, 20, 30, 40, 50]


index = int(input("Enter an index: "))
if 0 <= index < len(my_list):
    value = my_list[index]
    if value % 2 == 0:
        print("Valid index, even number")
    else:
        print("Valid index, odd number")
else:
    print("Invalid index")
```

OUTPUT

CASE 1

```
Enter an index: 4
Valid index, even number
```

CASE 2

```
Enter an index: 6
Invalid index
```

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Q.8. Remove Elements Meeting a Condition
You have a list temperatures = [25, 30, 105, 28, 16, -5, 99]. This list has some faulty readings (any temperature below 0 or above 100 is faulty). Create a new list that contains only the valid temperatures.

#CODE SART

```
temperatures = [25, 30, 105, 28, 16, -5, 99]


valid_temps = []


for temp in temperatures:
    if 0 <= temp <= 100:
        valid_temps.append(temp)


print("Valid temperatures:", valid_temps)
```

output

```
Valid temperatures: [25, 30, 28, 16, 99]
```

Q.9. Simple List Search
Create a list of names: names = ['Alice', 'Bob', 'Charlie', 'Diana']. Ask the user for a name to search for. If you find the name, print its position (index) in the list. If you don't find it, print "Name not found".

#CODE START

```
names = ['Alice', 'Bob', 'Charlie', 'Diana']
search_name = input("Enter a name to search: ")
if search_name in names:
    index = names.index(search_name)
    print(f"Found {search_name} at index {index}")
else:
    print("Name not found")
```

OUTPUT

```
Enter a name to search: Bob
Found Bob at index 1
```

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Q.10. Combined Condition on Multiple List Properties
Given a list numbers = [15, 7, 22, 9, 36, 12, 18], write a program that finds and prints all numbers in the list that are **both** greater than 10 **and** divisible by 3.

#code start

```
numbers = [15, 7, 22, 9, 36, 12, 18]

for num in numbers:

   if num > 10 and num % 3 == 0:

      print(num)
```


```
numbers = [15, 7, 22, 9, 36, 12, 18]


for num in numbers:

   if num > 10 and num % 3 == 0:

      print(num)
```


OUTPUT

```
15

36

12

18

15

36

12

18
```

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