Q1. Password Validation Function

Password Rules

1. At least **2 uppercase letters**
2. At least **2 lowercase letters**
3. At least **1 digit**
4. At least **3 special characters**
5. Exactly **10 characters long**

Program

```
def check_password(password):
    if len(password) != 10:
        return "Invalid Password"

    upper = lower = digit = special = 0

    for ch in password:
        if ch.isupper():
            upper += 1
        elif ch.islower():
            lower += 1
        elif ch.isdigit():
            digit += 1
        else:
            special += 1

    if upper >= 2 and lower >= 2 and digit >= 1 and special >= 3:
        return "Valid Password"
    else:
        return "Invalid Password"
```

```
# Example
print(check_password("AbCde@#1$%"))
```

Q2. Programs using Lambda / Map / Filter / List Comprehension

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1. Check if a string starts with a particular letter

```
starts_with = lambda s, ch: s.startswith(ch)
print(starts_with("Python", "P"))
```

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2. Check if the string is numeric

```
is_numeric = lambda s: s.isnumeric()
print(is_numeric("12345"))
```

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3. Sort a list of tuples by quantity

```
fruits = [("mango", 99), ("orange", 80), ("grapes", 1000)]

sorted_fruits = sorted(fruits, key=lambda x: x[1])
print(sorted_fruits)
```

---

4. Find the squares of numbers from 1 to 10

```
squares = list(map(lambda x: x**2, range(1, 11)))
print(squares)
```

---

5. Find the cube root of numbers from 1 to 10

```
cube_roots = list(map(lambda x: x ** (1/3), range(1, 11)))
```

```
print(cube_roots)
```

---

6. Check if a given number is even

```
is_even = lambda x: x % 2 == 0
print(is_even(10))
```

---

7. Filter odd numbers from a list

```
numbers = [1,2,3,4,5,6,7,8,9,10]

odd_numbers = list(filter(lambda x: x % 2 != 0, numbers))
print(odd_numbers)
```

---

8. Sort a list into positive and negative integers

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

positive = list(filter(lambda x: x > 0, numbers))
negative = list(filter(lambda x: x < 0, numbers))

print("Positive:", positive)
print("Negative:", negative)
```