1. Write a python program that takes a string as user input. Your job is to check whether the string has the following: uppercase letter, lowercase letter, number, special character. Possible special characters are: ! @ # $ % ^ & \* \_ +. Then display which cases were true **(in the order given in the question)**.

[CO6]

[10 marks]

**Sample Input 1:**

abcd1

**Sample Output 1:**

abcd1 contained lowercase letters

abcd1 contained numbers

**Sample Input 2:**

Abcd1\_

**Sample Output 2:**

Abcd1\_ contained uppercase letters

Abcd1\_ contained lowercase letters

Abcd1\_ contained numbers

Abcd1\_ contain special characters

2. Trace the following code:

| **1** | **i=0** |
| --- | --- |
| **2** | **j=0** |
| **3** | **k=13** |
| **4** | **test = '!!test!!'** |
| **5** | **while i < 3:** |
| **6** | **k -= 1** |
| **7** | **j = k** |
| **8** | **while j > 10:** |
| **9** | **if j % 2 == 0:** |
| **10** | **test += '-->'** |
| **11** | **test = test + str(i) + str(j // 2)** |
| **12** | **else:** |
| **13** | **test += '<--'** |
| **14** | **test = test + str(i // 2) + str(j)** |
| **15** | **print(test)** |
| **16** | **j-=1** |
| **17** | **i+=1** |

| **Output** |
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[CO4, CO6]

[10 marks]