

United International University
Department of Computer Science and Engineering

DS 1501: Programming for Data Science

Assignment-03 : Summer 2024

Total Marks: 10

Answer all the 2 questions. Numbers to the right of the questions denote their marks.

1. (a) In the world of **Demon Slayer**, you are tasked with determining if a group of Hashiras can defeat a powerful demon. Write a Python program to take input from the user for the total power of the Hashiras, the number of Hashiras, and the demon's rank. If the user enters the demon's rank as **Upper Moon 1-3**, reduce the Hashiras' power by 30%. If the demon's rank is **Upper Moon 4-6**, reduce the Hashiras' power by 20%. Then, based on the total power of the Hashiras, the number of Hashiras, and **the demon's rank**, determine if they can defeat the demon according to the following rules: [6]

- Upper Moon 1-3: Requires at least 3 Hashiras and a total power of Hashiras ≥ 3000
- Upper Moon 4-6: Requires at least 2 Hashiras and a total power of Hashiras ≥ 2000
- Any other demon: Requires at least 1 Hashira and a total power of Hashiras ≥ 1000

Sample Input	Sample Output
Enter the total power of the Hashiras: 4000 Enter the number of Hashiras: 4 Enter the Upper Moon demon's rank (if any): 2	Total Power of Hashiras after reduction: 2800.0 Demon Defeated: No
Enter the total power of the Hashiras: 2500 Enter the number of Hashiras: 2 Enter the Upper Moon demon's rank (if any): 5	Total Power of Hashiras after reduction: 2000.0 Demon Defeated: Yes

Table 1: Sample Input and Output of (Question-1(a))

- (b) In the world of **Jujutsu Kaisen**, you are tasked with determining if a cursed object exists in the special-grade or semi-grade list. Write a Python program that takes a string input from the user and checks if that input string exists in both lists. If the input string exists in both lists, it will print "**Exists in both lists.**" If the input string exists in only one of the lists, it will print "**Exists in special-grade list**" or "**Exists in semi-grade list**" accordingly. If the input string does not exist in either list, it will print "**Does not exist in either list.**" [4]

Input	Output
Enter a string: Sukuna's Finger	Exists in special-grade list
Enter a string: Black Rope	Exists in both lists
Enter a string: Cursed Womb	Exists in semi-grade list
Enter a string: Cursed Necklace	Does not exist in either list

Table 2: Sample Input and Output of (Question-1(b))