Exercise description

We are building a system that can track the campgrounds at a National Park as well as the attractions available for guests.
The candidate is requested to:
- Design and Document the object model (including Diagrams is a plus).
- Design and Document the application logic (including Diagrams is a plus).
- Implement necessary validations and restrictions
- Discuss Design Decision, Assumptions in a Read.me file.
- Avoid the use of external libraries, whenever that's not strictly needed (e.g. if developing in Java, Collections or other members of the Java standard library are allowed) .
- If external libraries are needed, discuss their use and why it's needed.
- Implement the needed code.
- Provide a runnable application.
- Provide the necessary unit/system tests.

Nice to have:
- Provide the necessary automations to build and test the code.

Exercise 1:

Consider a National Park with:
- 3 campsites
- 10 Rangers (One of the Rangers surname is Smith and his home phone number is +35399988771 and his work phone number is +35368978731)
- Ranger Smith home phone number is +35399988771
- Ranger Smith work phone number is +35368978731

- Ask 1:
Implement all interfaces/classes needed to represent the Object Model and the Application Logics to answer the following questions.

1. Which are the campsites at the park?
2. How many rangers work at the park?
3. What's the Home Phone Number of Ranger Smith?
4. What's the Work Phone Number of Ranger Smith?

- Required test cases:
1. There are 3 campsites and 10 Rangers
2. There is a Ranger Smith, whose home phone number is +35399988771 and work phone number is +35368978731

Exercise 2:

We want to keep track of all the guests who have stayed at a campsite.
Our system only needs one guest to register for a group. We also need their phone number.

Assume that:
a. So far we have received 10 guests in the park.
   a.1 Antonio Banderas
   a.2 Penelope Cruz
   a.3 Javier Barden
   a.4 Monica Bellucci
   a.5 Roberto Benigni
   a.6 Will Smith
   a.7 Jennifer Aniston
   a.8 Tom Hanks
   a.9 Meryl Streep
   a.10 Harrison Ford

b. 7 of those guests have stayed at one of the 3 campsites.
c. The campsite with 7 guests is the most popular campsite.

- Ask 2:

Extend your project Implementing all interfaces/classes needed to represent the Object Model and the Application Logics to answer the following questions.

1. Which campsite is the most popular?
2. How many guests have stayed at the park?

- Required test cases:
1. 10 guest are on the Park records
2. 7 of those guests have stayed at one of the 3 campsites.
3. The campsite with 7 guests is the most popular campsite.

Exercise 3:

Guests can stay at different campsites over time and so we need to track specific reservations.

Reservation Examples:

Guest	Campsite	From	To
Antonio Banderas	Campsite_1	06-01-2019	06-07-2019
Antonio Banderas	Campsite_2	07-03-2020	07-13-2020
Antonio Banderas	Campsite_1	08-01-2021	08-15-2021
Penelope Cruz	Campsite_2	06-01-2020	06-07-2020
Penelope Cruz	Campsite_1	06-01-2021	06-07-2021
Javier Barden	Campsite_1	07-01-2021	07-07-2021
Monica Bellucci	Campsite_3	07-03-2019	07-13-2019
Monica Bellucci	Campsite_1	08-15-2019	08-30-2019
Monica Bellucci	Campsite_3	06-05-2020	07-13-2020
Monica Bellucci	Campsite_3	06-01-2021	08-30-2021
Roberto Benigni	Campsite_1	08-15-2019	08-30-2019
Will Smith	Campsite_3	06-05-2020	07-13-2020
Will Smith	Campsite_3	06-01-2021	08-30-2021
Jennifer Aniston	Campsite_1	08-01-2021	08-15-2021
Tom Hanks	Campsite_2	07-03-2020	07-13-2020
Meryl Streep	Campsite_2	06-01-2019	06-07-2019
Meryl Streep	Campsite_1	06-05-2020	07-13-2020
Meryl Streep	Campsite_1	08-01-2021	08-15-2021

They also need to include their vehicle(s) as part of their reservation.
Campsites have a limit on the number of vehicles that can fit on the lot.

Assumptions.
Campsites vehicles(s) limits:

Campsite 1: 20
Campsite 2: 10
Campsite 3: 5

Campsites current occupation:

Campsite 1: 7
Campsite 2: 8
Campsite 3: 3

Campsite next month reservations:

Campsite 1: 3
Campsite 2: 5
Campsite 3: 1

- Ask 3:
Extend your project Implementing all interfaces/classes needed to represent the Object Model and the Application Logics to answer the following questions.

1. Which guests are staying at a particular campsite next month?
2. How do we track the number of vehicles allowed at a campsite?
3. How do we track the current capacity of the campsite, based on current reservations?
4. Ranger Smith needs to check that all guests are staying in the right campsite, so he needs do know all vehicles registration number and in which campsite they should be parked.

- Required test cases:

1. Verify that a list of 3 guests is returned when asking for all guest staying at campsite 1 next month
2. Verify campsites vehicles(s) limits list
3. Verify campsites remaining capacity, based on current occupation
4. Verify that Ranger Smith can get a list of registration number vehicles by campsite based on current occupation