

Biodiversity Places Management

By: Miguel Perez Ojeda

Code: A00407054

| | |
|------------------------------------|--|
| Customer User | The primary users of this system are volunteers or staff involved in the management of biodiverse places for COP 16 Cali - Colombia. |
| Functional requirements | <i>RF-1 - Registration of a biodiverse place</i> <i>RF-2 - Viewing places ordered by area</i> <i>RF-3 - Show the department with the most registered places</i> <i>RF-4 – Record Limit</i> <i>RF-5 - Main menu with options</i> <i>RF-6 - Program output</i> |
| Context of the problem | The Biodiversity Places Management program is a program that allows managing biodiverse places registered for COP 16 in Cali, Colombia. The application allows the user to register places with their name, department and area in square kilometers. In addition, it offers options to view the places ordered by their area, show the department with the most registered places, or exit the program. |
| Non-functional requirements | RNF-1 - Usability <ul style="list-style-type: none"> • The system must be easy to use, presenting clear messages and menu options that are understandable to the user. RNF-002 – Performance <ul style="list-style-type: none"> • The system must respond quickly to user input and perform registration, sorting and calculation operations in less than 1 second for up to 30 registered locations. RNF-5 - Portability <ul style="list-style-type: none"> • The system must be able to run in any environment that supports Java 8 or higher, without requiring additional modifications. RNF-6-Security |

| | |
|--|--|
| | <ul style="list-style-type: none"> • The system must not allow invalid or incomplete data to be entered (for example, empty names or non-numeric areas), displaying appropriate error messages. |
|--|--|

| | | | |
|-------------------------|--|-----------|--|
| Identifier and name | RF1- Register a Biodiverse Place | | |
| Summary | <p><i>The system allows the user to register a biodiverse place by entering its name, the department where it is located, and its area in square kilometers. The system validates that the name is not empty, the department is one of the allowed options (Valle, Chocó, Cauca, Nariño), and the area is a positive number. If all the data is valid, the place is added to the system.</i></p> | | |
| Inputs | Input name | Data type | Condition valid values |
| | Place Name | String | <i>Cannot be empty.</i> |
| | Department | String | Must be one of the following: Valle, Chocó, Cauca, Nariño (case-insensitive). |
| | Area in square kilometers | double | Must be a positive number greater than 0. |
| Result or Postcondition | <p>The place will be registered successfully if all validation conditions are met.</p> | | |
| Outputs | Output name | Data type | Format |
| | Registration Confirmation | String | <i>Text message confirming successful registration of the place.</i> |

| | |
|---------------------|--|
| Identifier and name | RF2-View Places Ordered by Area |
|---------------------|--|

| | | | |
|-------------------------|--|-----------|---|
| Summary | <i>The system allows the user to view a list of registered biodiverse places, ordered from smallest to largest based on their area in square kilometers. The system retrieves the list of places and sorts them before displaying the results.</i> | | |
| Result or Postcondition | The system will display the places in ascending order based on their area. | | |
| Outputs | Output name | Data type | Format |
| | Ordered List of Places | String | <i>Text message showing the name of the place and its area in square kilometers.</i> |
| Identifier and name | <i>RF-3 - Show the Department with the Most Registered Places</i> | | |
| Summary | <i>The system counts the number of biodiverse places registered by department and displays the department with the most registrations. If multiple departments have the same highest number of registrations, it will display the first one evaluated.</i> | | |
| Inputs | Input name | Data type | Condition valid values |
| Result or Postcondition | Text message showing the name of the department and the number of registered places. | | |
| Outputs | Output name | Data type | Format |
| | Department with the Most Places | String | <i>Text message showing the name of the department and the number of registered places.</i> |

| | | | |
|-------------------------|--|----------------|--|
| Identifier and name | <i>RF-4 - Registration Limit</i> | | |
| Summary | <i>The system allows the registration of a maximum of 30 biodiverse places. If the user attempts to register a place after reaching this limit, a message will be displayed informing that no more registrations can be added.</i> | | |
| Inputs | Input name | Data type | Condition valid values |
| | Place information (name, department, area) | String, Double | <i>Cannot be empty.</i> |
| Result or Postcondition | The system will not allow registering more places if 30 places have already been registered. | | |
| Outputs | Output name | Data type | Format |
| | Registration Limit Reached Message | String | <i>Text message indicating that no more places can be registered.</i> |
| Identifier and name | <i>RF5-Main Menu with Options</i> | | |
| Summary | <i>The system must display a main menu allowing the user to choose between registering a place, viewing places ordered by area, viewing the department with the most registrations, or exiting the program. Depending on the selected option, the corresponding functionality will be executed.</i> | | |
| Inputs | Input name | Data type | Condition valid values |

| | | | |
|-------------------------|--|-----------|--|
| | Menu option selection | int | <i>Must be a value between 1 and 4, representing the menu options.</i> |
| Result or Postcondition | The corresponding action will be executed based on the selected option. | | |
| Outputs | Output name | Data type | Format |
| | Menu Options | String | <i>Text displaying the available options for selection.</i> |
| Identifier and name | RF-6 - Exit the Program | | |
| Summary | <i>The system allows the user to exit the program when selecting the corresponding option from the menu. Upon exit, a farewell message is displayed and the program execution is terminated.</i> | | |
| Inputs | Input name | Data type | Condition valid values |
| | Option to exit | int | <i>Must be the option 4 from the menu.</i> |
| Outputs | Output name | Data type | Format |
| | Farewell Message | String | <i>Text indicating that the user has exited the program.</i> |

Example:

```
# Welcome, volunteer, to the Biodiverse Place Management Application for COP  
16 Cali - Colombia.
```

```
# Here are your options, enter:
```

```
# 1. Register a biodiverse place
```

```
# 2. View places ordered from smallest to largest with respect to area
```

```
# 3. View the department with the most biodiverse places registered so far
```

```
# 4. Exit the program
```

```
> 1
```

```
# Enter the name of the biodiverse place
```

```
> Amazon Rainforest Reserve
```

```
# Enter the department where the place is located (Valle, Choco, Cauca, Nariño):
```

```
> Nariño
```

```
# Enter the number of square kilometers of the place:
```

```
> 1200
```

```
# Place successfully registered.
```

```
# 1. Register a biodiverse place
```

```
# 2. View places ordered from smallest to largest with respect to area
```

```
# 3. View the department with the most biodiverse places registered so far
```

```
# 4. Exit the program
```

```
> 1
```

```
# Enter the name of the biodiverse place
```

```
> Los Katíos National Park
```

Enter the department where the place is located (Valle, Choco, Cauca, Nariño):

> Choco

Enter the number of square kilometers of the place:

> 3800

Place successfully registered.

1. Register a biodiverse place

2. View places ordered from smallest to largest with respect to area

3. View the department with the most biodiverse places registered so far

4. Exit the program

> 1

Enter the name of the biodiverse place

> Farallones de Cali National Park

Enter the department where the place is located (Valle, Choco, Cauca, Nariño):

> Valle

Enter the number of square kilometers of the place:

> 1000

Place successfully registered.

1. Register a biodiverse place

2. View places ordered from smallest to largest with respect to area

3. View the department with the most biodiverse places registered so far

4. Exit the program

> 1

Enter the name of the biodiverse place

Enter the department where the place is located (Valle, Choco, Cauca, Nariño):

> Valle

Enter the number of square kilometers of the place:

> 500

Place successfully registered.

1. Register a biodiverse place

2. View places ordered from smallest to largest with respect to area

3. View the department with the most biodiverse places registered so far

4. Exit the program

> 2

Places ordered from smallest to largest with respect to area are:

Valle National Park - 500 square kilometers.

Farallones de Cali National Park - 1000 square kilometers.

Amazon Rainforest Reserve - 1200 square kilometers.

Los Katíos National Park - 3800 square kilometers.

1. Register a biodiverse place

2. View places ordered from smallest to largest with respect to area

3. View the department with the most biodiverse places registered so far

4. Exit the program

> 3

The department with the most biodiverse places registered is:

Valle, with 2 biodiverse places.

1. Register a biodiverse place

2. View places ordered from smallest to largest with respect to area

3. View the department with the most biodiverse places registered so far

4. Exit the program

> 4

Thank you for using the system.

Flowchart:

