The Government of India has launched a nationwide photography contest to capture the nation's beauty, employing a comprehensive validation system that rigorously checks participant details, image quality, and submission dates using exceptions. Additionally, the system calculates the average ratings from four judges to ensure a fair and accurate evaluation of each entry.

**Consider the following scenario:**

In the UserInterface class, the input consist of participant details**(name, age, and email)**separated by colons, the image file size in megabytes (**fileSizeMB**), the **submission date**, and an array of **four ratings in double.**

**Component Specification: ContestManagementSystem(Utility class)**

|  |  |  |  |
| --- | --- | --- | --- |
| **Type (Class)** | **Method** | **Parameters** | **Responsibilities** |
| ContestManagementSystem | validateParticipantDetails | String name, int age, String email | This method accepts participant details-name, age, and email as input parameters and validates them against contest requirements.  **1)Name Validation:**   * The name must be between 0 and 20 characters (exclusive). * If the name is too short or too long, it throws an **InvalidParticipantDataException**with the message: **"Participant name length should be more than 0 and less than 20 characters".**   **2)Age Validation:**   * The age must be at least 18 years. * If the age is below 18, it throws an **InvalidParticipantDataException**with the message: **"Participant must be atleast 18 years old".**   **3)Email Validation:**   * The email must contain both '@' and '.' characters. * If the email is invalid, it throws an **InvalidParticipantDataException**with the message:**"Participant email must contain both '@' and '.' to be valid".** |
| ContestManagementSystem | validateImageFileSize | double fileSizeMB | This method accepts the image file size in megabytes (fileSizeMB) as an input parameter and validates it to ensure it meets the contest requirements. If the file size is less than or equal to 0 MB or greater than 10 MB, it throws an **InvalidParticipantDataException**with the message **"Image file size must be between 0 and 10 MB"** If the file size is within the valid range, the method returns true. |
| ContestManagementSystem | validateSubmissionDate | String dateOfSubmission | This method accepts the **dateOfSubmission**as an input parameter in the format **"yyyy-MM-dd"** and validates it against the contest's deadline. It uses strict date parsing to ensure the date format is correct. If the submission date is after the deadline **"2024-11-30"**, it throws an **InvalidParticipantDataException**with the message**"Submission date must be on or before 2024-11-30"** If the submission date is valid and within the deadline, the method returns true. |
| ContestManagementSystem | calculateAverageRating | double[] ratings | This method calculates the average rating from an array of double values. It first validates that the array contains exactly 4 elements; if not, it throws an **InvalidParticipantDataException**with the message**"The ratings array must have exactly 4 elements"** It then iterates through each rating, ensuring that each value is between 0 and 5. If any rating falls outside this range, it throws an **InvalidParticipantDataException**with the message**"Invalid rating: values must be from 0 to 5".** If all validations pass, it calculates and returns the average of the ratings.  **Constraint:**   * The calculated average rating is then returned as double. |

**Component Specification:**

**InvalidParticipantDataException (This class inherits the Exception Class)**

| **Type (Class)** | **Responsibilities** |
| --- | --- |
| InvalidParticipantDataException | The single-argument constructor public InvalidParticipantDataException (String message) is used to throw an exception when name, age,email, fileSizeMB, dateOfSubmission, ratings array length and ratings while calculating the average rating do not follow the validation rules.  If any exception is raised during validation, handle it appropriately and display an error message corresponding to the type of exception. |

The UserInterface class handles user input for a photography contest. It prompts the user to enter participant details (name, age, and email), image file size, submission date, and four ratings. The class then invokes the respective methods in the ContestManagementSystem class to validate each input:

* **Participant Details:**The validateParticipantDetails method is invoked. If it returns true, it prints "**Participant details are valid**"
* **Image File Size:**The validateImageFileSize method is invoked. If it returns true, it prints "**Image file size is valid**"
* **Submission Date:**The validateSubmissionDate method is invoked. If it returns true, it prints "**Submission date is valid**"
* **Ratings:**The calculateAverageRating method is invoked to compute and print the average rating.

If any validation fails, an InvalidParticipantDataException is thrown and caught, and the corresponding error message is printed.

The output should be printed as shown in the sample outputs.

**Note:**

* **Propagate the exceptions that occur in InvalidParticipantDataException class and handle them in main method.**
* If the input results in **InvalidParticipantDataException**then print the corresponding message.
* In the sample input and output provided, the highlighted text in bold corresponds to the input given by the user, and the rest of the text represents the output.
* Ensure to follow the object-oriented specifications provided in the question description.
* Ensure to provide the names for classes, attributes, and methods as specified in the question description.
* Adhere to the code template, if provided.
* Do not use **System.exit(x)** to terminate the code.

**Sample Input/Output 1:**

Enter participant details (name:age:email):

**JohnDoe:25:john.doe@example.com**

Participant details are valid.

Enter image file size (in MB):

**3.5**

Image file size is valid

Enter date of submission (yyyy-MM-dd):

**2024-09-24**

Submission date is valid

Enter the ratings:

**2.3,5,4,5**

Average Rating: 4.075

**Sample Input/Output 2:**

Enter participant details (name:age:email):

**AlexanderJonathanSmith:23:Alex@gmail.com**

Participant name length should be more than 0 and less than 20 characters

**Sample Input/Output 3:**

Enter participant details (name:age:email):

**Alexander:16:Alex@gmail.com**

Participant must be atleast 18 years old

**Sample Input/Output 4:**

Enter participant details (name:age:email):

**Alexander:19:Alex@gmail,com**

Participant email must contain both '@' and '.' to be valid

**Sample Input/Output 5:**

Enter participant details (name:age:email):

**Alexander:19:Alex@gmail.com**

Participant details are valid

Enter image file size (in MB):

**15**

Image file size must be between 0 and 10 MB

**Sample Input/Output 6:**

Enter participant details (name:age:email):

**Mathew:22:Mathew@gmail.com**

Participant details are valid

Enter image file size (in MB):

**9**

Image file size is valid

Enter date of submission (yyyy-MM-dd):

**2024-12-01**

Submission date must be on or before 2024-11-30

**Sample Input/Output 7:**

Enter participant details (name:age:email):

**FinLang:32:Lang@yahoo.com**

Participant details are valid

Enter image file size (in MB):

**7**

Image file size is valid

Enter date of submission (yyyy-MM-dd):

**2024-11-01**

Submission date is valid

Enter the ratings:

**3.8,5,4.8,2,4**

The ratings array must have exactly 4 elements

**Sample Input/Output 8:**

Enter participant details (name:age:email):

**Lenin:45:Lenin@yahoo.com**

Participant details are valid

Enter image file size (in MB):

**5**

Image file size is valid

Enter date of submission (yyyy-MM-dd):

**2024-11-01**

Submission date is valid

Enter the ratings:

**4.5,3.8,6.0,2.7**

Invalid rating: values must be from 0 to 5