Project Specifications of Blooper App

(Version: 1.5)

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Clueless Developers' Consortium

Contents

1 Document Info

1.1 Authors

Following authors were invovled in preparation of this document.

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1.2 Document Versions

Following table summarizes the details contained in various versions of this docment.

Versions	Changes	Author	Date
v1.5	Added use-cases	whoopie	14 June, 2025
v1.4	Added section Track Changes	changu	9 February, 2025
v1.3	Added DB schema	whoopie	24 December, 2024
v1.2	Updated partial program specifications	whoopie	15 November, 2024
v1.1	Completed functional specifications	changu	28 October, 2024
v1.0	Added introductory text	whoopie	2 October, 2024

1.3 Track Changes

No.	*Type*	*Changes*
1	✂ CUT	No two user-accounts should be possible to be created using same mobile number.
2	+ NEW	Multiple user-accounts should be able to be created using the same mobile num...
3	✂ CUT	Subsubsection 3.1.3
4	✂ CUT	List Item 3.1.4.3.2.1
5	+ NEW	List Item 3.1.4.3.2.4

6	✂ CUT	{
		”status”: 421,
		”message”: ”Field supplied is not valid”
		}

7	+ NEW	{
		”status”: 422,
		”message”: ”Invalid field supplied”
		}

8	+ NEW	BlooperDB
9	+ NEW	code: varchar(8), null
10	✂ CUT	description: varchar(128), default null

••• →

No.	Type	Changes
11	✂ CUT	blooper_views

2 Introduction

Clueless Developers' Consortium has been allocated the project to develop Bloopers App. This document defines the specifications of that project. It is divided primarily into two parts - Functional Specifications and Program Specifications. For any queries regarding this project, please contact whoopie@clueless.dev.

It is sincerely hoped that this project specifications document would be found extremely useful by the client to manage and maintain the Blooper App properly for a very long period of time.

3 Functional Specifications

This section provides the detailed functional specifications of Blooper Application.

3.1 User Registration

This module defines the user-registration aspect of the Blooper. Anonymous users are allowed to self-register and proceed to use the application.

↰ User-registration Module

3.1.1 Requirement Specifications

Following requrements specifications are applicable to the user-registration module of the application.

1. New user should be able to self-register to the Blooper application. Using a specified URL, anonymous users would be able to fetch a web-form to fill-up.
2. Users with an email address and mobile number should be able to create an account in Blooper.
3. No two user-accounts should be possible to be created using same email address.
4. CUT✂ No two user-accounts should be possible to be created using same mobile number.

   ↰ Track Changes: 1
5. NEW✚ Multiple user-accounts should be able to be created using the same mobile number.

   ↰ Track Changes: 2
6. User should be able to register from certain geographical regions only.

> Q: How to prevent people from using VPN to beat geographical restrictions?
> A: It is not possible to do.
> Q: Is there any third party service, which provides such facilities?
> A: Not known.

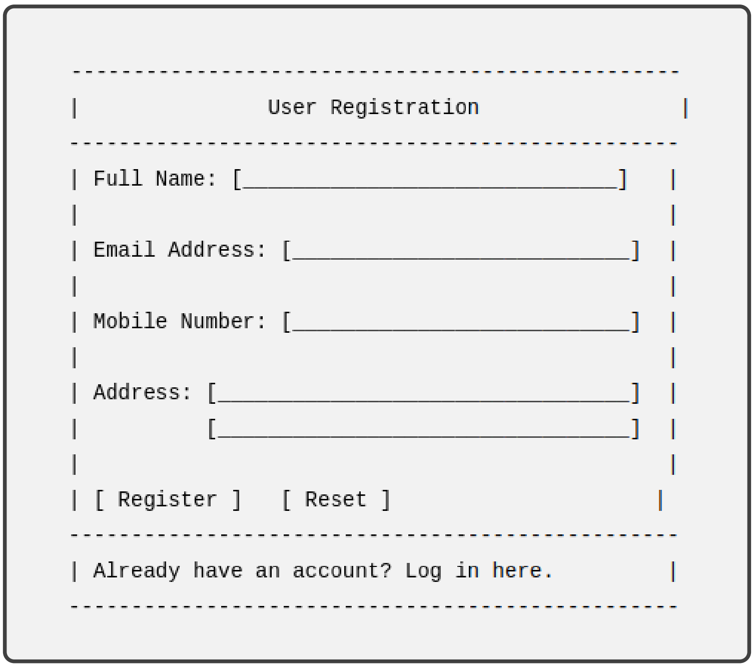
3.1.2 Wireframes

Following wireframes are proposed for the user-registration screen.

3.1.2.1 User-Registration Form

This screen is displayed to a new user whose user-account is yet to be created. Initially, all fields turn out empty. The user needs to fill the required fields in this form.

↰ Wireframes for User Registrat...
↰ User-registration Screen
↰ Login



```
-------------------------------------------------
|               User Registration                 |
-------------------------------------------------
| Full Name: [______________________________]   |
|                                               |
| Email Address: [___________________________]  |
|                                               |
| Mobile Number: [___________________________]  |
|                                               |
| Address: [_________________________________]  |
|          [_________________________________]  |
|                                               |
| [ Register ]   [ Reset ]                      |
-------------------------------------------------
| Already have an account? Log in here.         |
-------------------------------------------------
```

Figure 1: User-registration Form

3.1.2.1.1 Form-Fields

Following fields are expected to be present in this form.

Field-Names	Required	Max-Size	Allowed Values	Unique
Email Address	Yes	char(128)	.a-z0-9-_+@	Yes
Mobile Number	Yes	char(12)	+-0123456789	Yes
Full Name	No	char(128)	A to Z, and a to z	No
Address	No	char(512)	A-Z, a-z, 0-9, - +	No

↰ Row 1

- **Email Address**:
  - It would be unique across the user-database.
  - That means, no two users can have same email address.
- **Mobile Number**:
  - Mobile number should be unique across the application-database.
  - No two users using this application can have same mobile number.

3.1.2.1.2 Buttons

Following buttons are expected to be made available on the screen.

1. **Register**: Registers the new user.
   (a) **Normal Flow**
      i. System validates supplied data before creating user-account.
      ii. If everything is in order, then system create new user-account.

   (b) **Exception Flow**If one or more validations fail, then system displays validation error with following details.

      i. If email address is associated with any existing user-account, then system notifies that no new account can be created with same email address.

      ii. If mobile number is associated with any existing user-account, then system notifies the user that no new account can be created with the same mobile number.

2. **Reset**: Reset all fields of the registration form.

   (a) **Normal Flow**

      i. Clean-up contents of all fields.

↰ Reset

3.1.2.1.3 Links

Following hyperlinks are expected to be present on the screen.

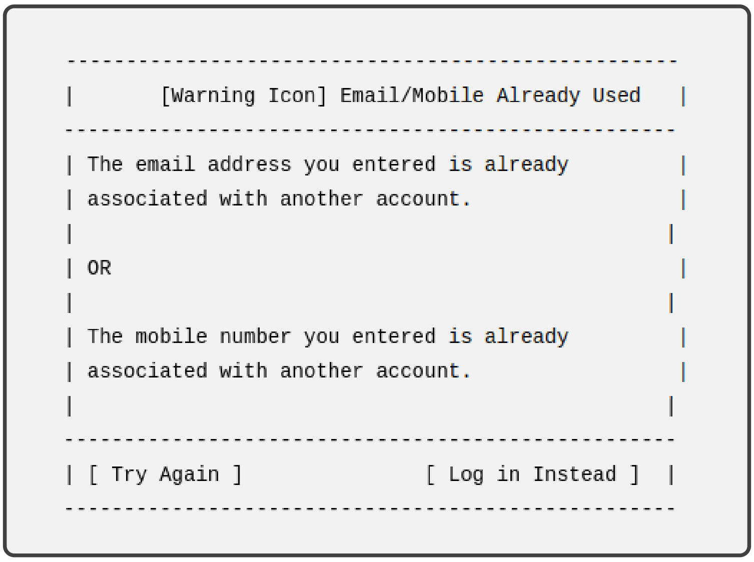
- **Login Here**: If account is present, click to sign-in.

↰ Row 1

3.1.2.2 Warning Message for Duplicate User-Account

This screen is displayed, when one or more fields which are unique across the application is supplied as part of user-registration, but the same had been supplied earlier for another user-account too.

This could be a pop-up window.



```
---------------------------------------------------
|      [Warning Icon] Email/Mobile Already Used   |
---------------------------------------------------
| The email address you entered is already        |
| associated with another account.                |
|                                                |
| OR                                              |
|                                                |
| The mobile number you entered is already        |
| associated with another account.                |
|                                                |
---------------------------------------------------
| [ Try Again ]              [ Log in Instead ]  |
---------------------------------------------------
```

Figure 2: Message Box for Existing Record

↰ Error-Message Box for Existin...

3.1.2.2.1 Buttons

1. **Try Again**: Re-submit the form by going to the registration form and by modifying its form-fields.

Q: Is re-executing the GET request on the form required here?
Q: Is it not sufficient enough to handle it locally, by rendering the cached form itself?

2. **Login Instead**: If an account exists already, proceed to the login form.

3.1.3 CUT✂ Subsubsection 3.1.3

Q: How can Subsubsection 3.1.3 be used as a section heading?

↰ Track Changes: 3

3.1.3.1 Sample Table

A Sample table is given below.

Cell 00	Header 1	Header 2	Header 3	Header 4
Row 1	Cell 1.1	21.05	Cell 1.3	Cell 1.4
Row 2	Cell 2.1	301.75	Cell 2.3	Cell 2.4
Row 3	Cell 3.1	8.18	Cell 3.3	Cell 3.4
Row 4	Cell 4.1	-76.41	Cell 4.3	Cell 4.4
Row 5	Cell 5.1	1.87	Cell 5.3	Cell 5.4
Total		**256.44**		

↰ Row 3

- **Row 1**:
  - First note for Row 1.
  - Second note for Row1 which refers to Login Here.
  - Third note for Row1 (see also Mobile Number).
- **Row 2**: First note for Row2.
- **Row 3**:
  - First note for Row 3.
  - Second note for Row 3 depends on Row 1.
  - Third note for Row 3.
  - Fourth note for Row 3.

3.1.4 Subsubsection 3.1.4

1. List Item 3.1.4.1
2. List Item 3.1.4.2
   (a) List Item 3.1.4.2.1
   (b) List Item 3.1.4.2.2
   (c) List Item 3.1.4.2.3
   (d) List Item 3.1.4.2.4
   (e) List Item 3.1.4.2.5
3. List Item 3.1.4.3
   (a) List Item 3.1.4.3.1
   (b) List Item 3.1.4.3.2

        i. CUT✂ List Item 3.1.4.3.2.1

↰ Track Changes: 4

        ii. List Item 3.1.4.3.2.2
        iii. List Item 3.1.4.3.2.3
        iv. NEW+ List Item 3.1.4.3.2.4

↰ Track Changes: 5

        v. List Item 3.1.4.3.2.5
        vi. List Item 3.1.4.3.2.6

    (c) List Item 3.1.4.3.3

> Be warned!!!

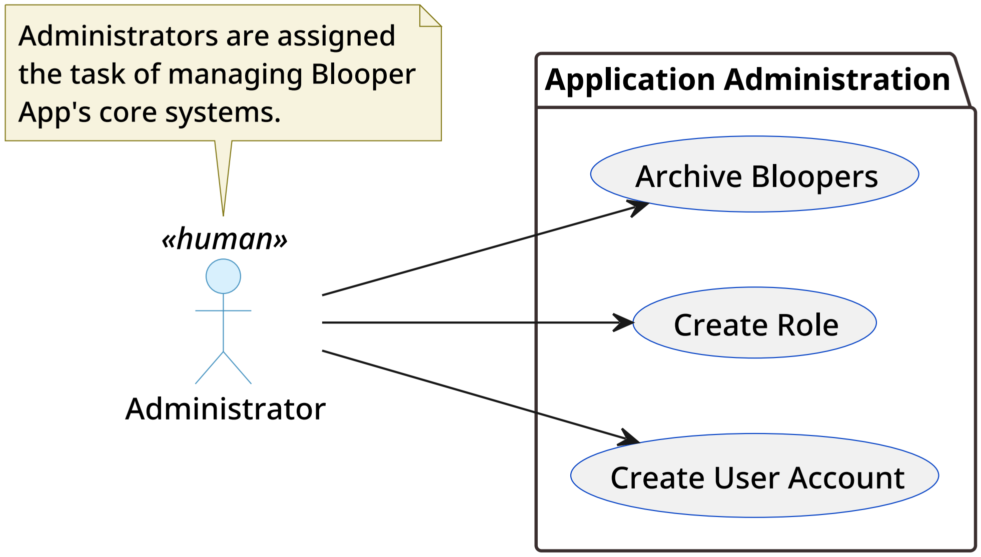
    (d) List Item 3.1.4.3.4
        i. List Item 3.1.4.3.4.1
        ii. List Item 3.1.4.3.4.2
        iii. List Item 3.1.4.3.4.3
        iv. List Item 3.1.4.3.4.4

3.2 Use Cases

Following use-cases are applicable for the Blooper App.

3.2.1 Application Administration

This package contains usecases pertaining to the administrative activities of the application.


Administrators are assigned the task of managing Blooper App's core systems.
«human»
Administrator
Application Administration
Archive Bloopers
Create Role
Create User Account

Create User Account
System provides a form to enter details of user-account.
User enters mandatory and optional data into the form.

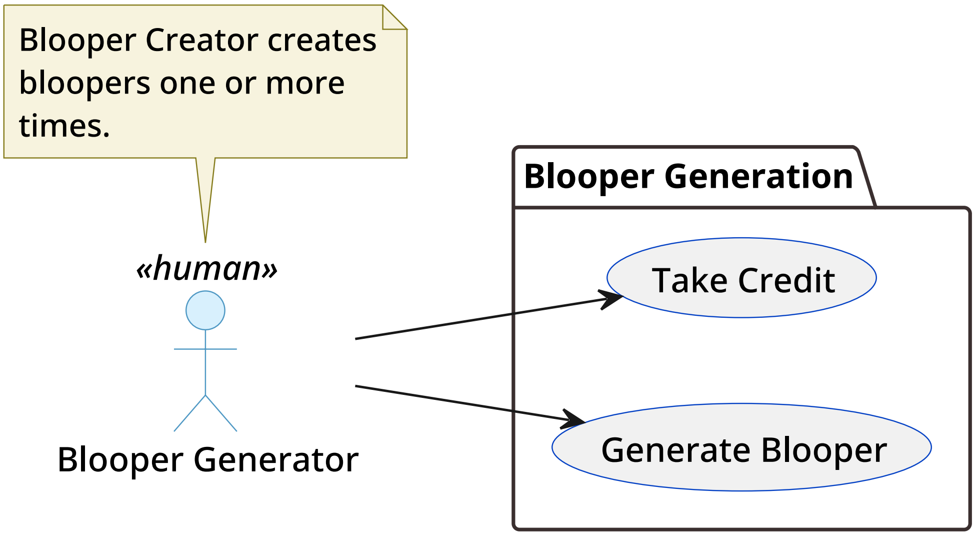
	Create User Account
Normal Flow	User submits the form.
	System persists the data in a database.

	Create Role
Normal Flow	System provides a form to enter details of user-roles.
	User enters mandatory and optional data into the form.
	User submits the form.
	System persists the data in a database.

	Archive Bloopers
Preconditions	One or more bloopers with remedial actions must exist.
Normal Flow	System lists down all bloopers having respective remedial actions taken.
	User selects one or more bloopers from list.
	User submits selected bloopers for archival.
	System moves the selected bloopers to the archive.
	System removes the selected bloopers from the list.
Alternate Flow	If one or more selected bloopers are marked for not archival, do not list them in archival screen.
Exception Flow	In case moving blooper to archive fails, do not remove it from the blooper list.

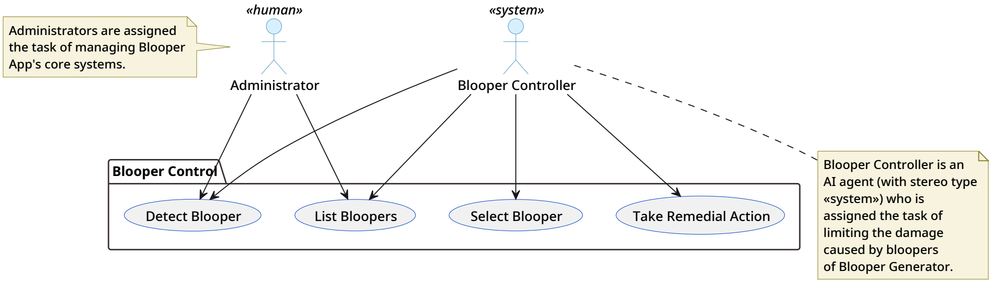
3.2.2 Generation of Bloopers

This package defines usecases involved in generation of bloopers.



3.2.3 Blooper Control

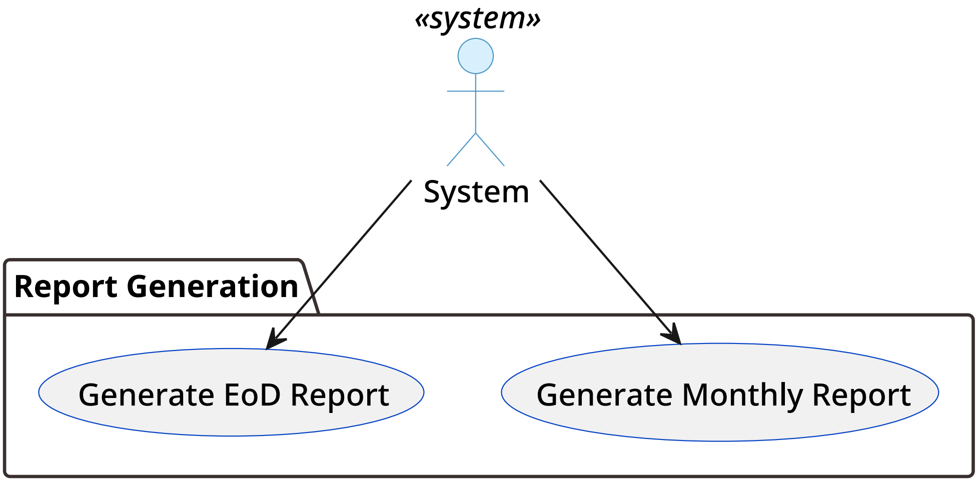
Following are the usecases pertaining to controlling bloopers.


Administrators are assigned the task of managing Blooper App's core systems.
«human»
Administrator
«system»
Blooper Controller
Blooper Control
Detect Blooper
List Bloopers
Select Blooper
Take Remedial Action
Blooper Controller is an AI agent (with stereo type «system») who is assigned the task of limiting the damage caused by bloopers of Blooper Generator.

Select Blooper	
Preconditions	One or more bloopers must exist already.
Normal Flow	Search criteria is supplied by user to search bloopers based on them.
	System returns a list of matching bloopers which is rendered in a table with pagination enabled.
Alternate Flow	System returns an empty list to indicate that no bloopers matched supplied search criteria.
Exception Flow	User doesn't have rights to search and list bloopers.

3.2.4 MIS

All report-related usecases are collected here.



4 Effort Estimations

The estimation of work is calculated using function-point analysis method. It was reviewed by following people:

1. Mr. Changu Bhai

2. Mrs. Mai In Jun

Following table summarizes the approximate efforts (in person-hours) required for designing, developing, preparation of unit tests, functional testing, and documentation for each module of this application.

Modules	Des.	Dev.	U. Test.	F. Test.	Doc.	Remarks
User Registration	2	9	6	2	1	
Password Reset	3	4	4	6	2	
Blooper Generation	4	10	8	2	2	Complex module
Total	**9**	**23**	**18**	**10**	**5**	

5 Risks

Following risks are identified for this project.

1. Developer Attrition

Risk-ID: RSK-01

Risk-Types: Time, Financial

- It is possible that skilled developers leave the project mid-way of execution.
- As a remedy, a pool of skilled resources should be kept on bench, which might increase the financial risk.

2. Delay in Communication with Client

Risk-ID: RSK-02

Risk-Types: Time

- The delay in receiving clarifications from client on critical matters would affect the timelines of delivery.
- The turnaround time for such communication threads should be well-defined and included in the contract-terms to mitigate this risk.

3. Usage of unsupported Open Source solutions

Risk-ID: RSK-03

Risk-Types: Compliance

- The data-cleaning solution used in this application is not maintained by the open source community anymore. Its last update was found to be four years old.
- As a mitigation strategy, funding should be provided to revive and maintain this open source project and release the new version with fixes for reported bugs.

6 Modules and Deliverables

Following modules and deliverables are identified for phase 1 of this project.

Deliverable-ID: DLV-01

Deliverable	LDAP based User Authentication Module
Accountability	Mohan Kumar
Date of Delivery	November 30, 2025

1. Implementation of module for user-authentication using LDAP.
2. An extension library named blooper_ldap_ext which will allow other applications to use Blooper App as their SSO service provider by using its own LDAP backend.

Deliverable-ID: DLV-02

Deliverable	Program Specification for SSO Integration
Accountability	Mai In Jun
Date of Delivery	November 08, 2025

Deliverable-ID: ~~DLV-03~~

Deliverable	~~Password Reset Form~~
Accountability	<not specified>
Date of Delivery	November 12, 2025

Deliverable-ID: DLV-04

Deliverable	Wireframes for User Authentication UI
Accountability	Uday Khedekar
Date of Delivery	November 22, 2025

Deliverable-ID: DLV-05

Deliverable	Wireframes for User Registration UI
Accountability	Shabnam Ansari, Ramji D'souza
Date of Delivery	November 16, 2025

Screen mockups for user registration module is to be developed. The wireframes for the same is available at User-registration Form.

Deliverable-ID: DLV-06

Deliverable	Realm-restriction Middleware
Accountability	Josephine Walters
Date of Delivery	November 19, 2025

A middleware to ensure that incoming requests from the authenticated users do not cross the realm-boundary. The realm-code applicable for that user would be injected automatically into the request.

Deliverable-ID: DLV-07

Deliverable	Email based Password Reset Module
Accountability	Uday Khedekar
Date of Delivery	November 16, 2025

Users should receive an email containing link to reset the password, subject to additional confirmation of date of birth, or some other secret questions set by the user.

7 Program Specifications

7.1 User-registration Module

This section elaborates on the program specifications of implementation of user-registration module of Blooper.

The functional requirements of this module is described in User Registration.

7.1.1 Screens

Following screens are developed for user-registration purpose.

7.1.1.1 User-registration Screen

Please refer User-registration Form for wireframe of user-registration screen.

7.1.1.1.1 Buttons

- **Register**

  The Normal Flow provides the details of the normal flow of actions when this button is clicked.

  The Exception Flow provides the details of the exception flow of actions when this button gets clicked.

  - **API Endpoint**: /api/v1/users/register
  - **Method**: POSTHTTP POST method is used on this API endpoint for the intended result.

POST method requires input data to be sent in HTTP request-body itself.

- **Input**Input formats are described below.

  -
    ```
    {
      "fullname": "Jagmeet Chautala",
      "emailaddress": "jagmeetc@example.com",
      "mobilenumber": "1234567890",
      "address": "72, B street, Park Avenue, Sonpat,
      Hryana, INDIA"
    }
    ```

    This is the JSON format of input.

  -
    ```
    {
      "fullname": "Jagmeet Chautala",
      "emailaddress": "jagmeetc@clueless.dev",
      "mobilenumber": "1234567890"
    }
    ```

    It is also possible that some partial data is supplied by ignoring optional details.

- **Normal Output**

  -
    ```
    {
      "status": 200
      "message": "Created"
    }
    ```

- **Exception Output**

  ↰ Track Changes: 6

  - CUT✂

    ```
    {
      "status": 421,
      "message": "Field supplied is not valid"
    }
    ```

  ↰ Track Changes: 7

  - NEW✚

    ```
    {
      "status": 422,
      "message": "Invalid field supplied"
    }
    ```

- **Reset**

  On-click, it empties all the fields of the form as also explained in Reset.

  - **Method**: Javascript function to reset all form-fields.

7.1.1.1.2 Links

- **Login**

  This hyperlink takes the user to the login page as shown in User-registration Form.

- **CDC**

This hyperlink takes the user to an external site, which is official website of the company Clueless Developers' Consortium.

7.1.1.2 Error-Message Box for Existing Record

Message Box for Existing Record shows the wireframe containing the error message described in this section.

7.1.1.2.1 Buttons

1. **Try Again**: Clicking on this button takes the user to the pre-populated user-registration page.
2. **Login Instead**: Clicking on this button takes the user to the login page.

7.1.2 Classes

Following classes are used in this module.

7.1.2.1 User

The User class acts mostly like a data container, in which all user-related attributes are captured. But at the same time it allows certain methods like deactivate() to exist which, as its name suggests, deactivates the underlying user-account.

7.1.2.1.1 Attributes

Following attributes are defined in the User class:

- **username**: A string containing the username which is used to login to the application.
- **password_hash**: A string containing the hash of the user-password generated by bcrypt
- **email**: A string containing the email address of the user
- **status**: A string which has following valid values:
  - **A**: Active
  - **I**: Inactive
  - **D**: Deleted

7.1.2.1.2 Methods

Details of methods defined for this class are given below.

1. get_current_blooper_count()
   - **Type**: Public
   - **Arguments**: None
   - **Returns**: A number indicating the current blooper-counts of the user
   - **Raises**: Nothing

     No exceptions are raised in this method.
2. get_reportees()

- **Type**: Public
- **Arguments**: None
- **Returns**: It returns a JSON string containing the User objects associated with the reportees of this user. A sample JSON string is given below.

  ```
  [
    {
      "username": "Jagmeet Chautala",
      "email": "jagmeetc@clueless.dev"
    },
    {
      "username": "Madhuri Varma",
      "email": "madhuri.verma@clueless.dev"
    }
  ]
  ```
- **Raises**
  - **NotFound**: No reportees are found for this user.

3. deactivate()Deactivates the user-account by setting its attribute ”status” to ”I”.
   - **Type**: Public
   - **Arguments**: None
   - **Returns**: Nothing
   - **Raises**
     - **OperationFailed**: The user-record is already inactive.

7.2 Subsection 7.2

7.2.1 Subsubsection 7.2.1

7.2.2 Subsubsection 7.2.2

7.2.3 Subsubsection 7.2.3

7.2.3.1 Subsubsubsection 7.2.3.1

7.2.3.2 Subsubsubsection 7.2.3.2

8 Database Schema

In this section, we describe the database schema of databases used in Blooper App.

8.1 Relational Databases

Blooper App would be using HisSQL as its RDBMS in the backend. Multiple tables are required to implement the features expected from the this application. An RDBMS is required to maintain the integrity as well as consistency of the data-records pertaining to this application.

Following details are pertinent to the RDBS schema used in Blooper App.

8.1.1 NEW+BlooperDB

↰ Track Changes: 8

BlooperDB is the name of the database stored in HisSQL.

Following are the tables defined in this database. The specifications of the fields in each of the tables are given too. If certain fields have any specific notes associated with them, then they are displayed at the right side panel of each table.

1. **users**

↰ org_admins: user_id
↰ blooper_views: viewed_by_id
↰ bloopers: blooped_by
↰ bloopers: detected_by

field	*type*	*unique*	*null*	*default*
`id` 🔑↑	int			
`name`	varchar[64]	yes	no	
`email`	varchar[80]			null
`contact_no`	varchar[16]			null
`dob`	date		no	
`status`	char[1]		no	

- `email`: Only one email address is allowed in this field.
- `dob`: Date in ISO date format.
- `status`: (A)ctive, (I)nactive, (D)eleted

2. **organizations**

↰ org_admins: org_id
↰ bloopers: affected_by

field	*type*	*unique*	*null*	*default*
`id` 🔑↑	int			
`name`	varchar[64]	yes	no	
`address_id` (🔑 addresses)	int		no	
`status`	char[1]		no	A

- `status`: (A)ctive, (I)nactive, (D)eleted

3. **org_admins**

field	*type*	*unique*	*null*	*default*
`id` 🔑↑	int			
`org_id` (🔑 organizations)	int		no	
`user_id` (🔑 users)	int		no	
`since`	date		no	

- `since`: The date from which this user is assigned the role of administrator for this organization.

- One organization may have one or more administrators. They are mapped using this table.
- The ”since” field indicates a date when a particular administrator was mapped to an organization.

4. **addresses**

↰ organizations: address_id

field	*type*	*unique*	*null*	*default*
`id` 🔑↑	int			
`address1`	varchar[128]		no	
`address2`	varchar[128]		yes	
`location_id` (🔑 locations)	int		no	

5. locations

↰ addresses: location_id

field	type	unique	null	default
id 🔑↑	int			
name	varchar[64]		no	
state_id (🔑 states)	int		no	

- Unique(name, state_id)

6. states

↰ Track Changes: 9

↰ locations: state_id

field	type	unique	null	default
id 🔑↑	int			
name	varchar[64]		no	
NEW+ code	varchar[8]		yes	
country_id (🔑 countries)	int		no	

- Unique(country_id, code)
- Unique(country_id, name)

7. countries

↰ Track Changes: 10

↰ states: country_id

field	type	unique	null	default
id 🔑↑	int			
code	varchar[4]	yes	no	
name	varchar[64]	yes	no	
CUT✂ description	varchar[128]			null

- code: Usually two-character country code.

8. CUT✂ blooper_views

↰ Track Changes: 11

field	type	unique	null	default
id 🔑↑	int			
blooper_id (🔑 bloopers)	int		no	
viewed_by_id (🔑 users)	int		no	
viewed_at	datetime		no	now()

9. bloopers

↰ blooper_views: blooper_id

field	*type*	*unique*	*null*	*default*
`id` 🔑↑	int			
`blooped_by` (🔑 users)	int		no	
`loss_amount`	decimal[10,2]			
`blooped_at`	date		no	
`detected_by` (🔑 users)	int		no	
`affected_by` (🔑 organizations)	int		no	
`meta_info`	json		yes	

- `loss_amount`:
  - The money (in INR) lost due to this blooper.
  - Up to two decimal values, it is captured.
- `detected_by`: The user who detected this blooper.
- `affected_by`: The organization affected by this blooper.
- `meta_info`: Any additional information pertaining to this blooper would be stored here. There is no fixed schema for it. The object using this field is expected to know how to use this data.

9 Deployment Strategies

Blooper App is containerized using Docker. These docker based containers are deployed on virtual machines (VMs) running on the cloud. The VMs are usually deployed on AWS, or Azure clouds.

Kubernetes too can be used to manage the deployment of these applications.

* * * * *

(Document prepared on 13 February, 2026 at 02:04:00 PM IST)