# Birds Adventure App

# (TEAM 2)

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# Introduction

The era of mobile technology opens the window to the android app, these apps are taking over the websites eventually. This is the time for building the applications for each aspect and for easy accessibility to users. This app "Birds Adventure App" will be a handy application and keep track of the species we see in the field, their habitat, and irrespective of the internet. This way the users will have the best knowledge on birds, the music of the birds, pictures, videos, and the location of where the birds are located. It is easy to use a birding app, where a user can have his own personal space to upload the new information on birds, and can explore the plethora of birds and bird’s information. Sometimes, it's tricky to identify the name of the flying bird. For example, Falcons, Eagles, Raptors are much alike and difficult to recognize, in this case, we can search for a name and get the results for the specific bird and compare it with the bird we see and get the information of the bird within the app. In addition, if the feature "Features Bird" is turned on, the app sends the notification to users whenever the users pass through the locations(specified in the app with regional birds)and can be turned off. However, irrespective of the feature, Users will still get the notifications if the user marked the listing bird to his favorites.

**Aim**

Developing an interest in birds quickly reveals just how intimately connected we are with earth’s other inhabitants. All living creatures are interdependent, but humans need birds in the world much more than they need us. So, we came up with an idea of creating a Birds Adventure App that will target the audience who are more interested in collecting media about birds and can view any bird’s info from the app. The Birds Adventure App. is a nature application that allows users to share their media with others so that more and more people connect with nature. At the end, the main objective behind this application is to help people generate their interest in birds in order to ensure a healthy ecosystem.

**Scope**

We believe our Birds are nature’s one of the most beautiful creatures. Birds adventure application is an interesting  place where a guest user can see some featured bird’s pictures, videos and listen to their sounds. It is a great hub for registered users as there are many interesting functionalities in the application such as a user can create his own personal collection which can be images, video clips and sound clips. User has a choice to create the folder of his own choice to organize the captured stuff. Application users can retrieve information about  specific birds as they can search on the search page by the name or location of a bird. He can add birds into his favourite list to get the notification about their regions. Users will receive notifications regarding featured bird’s specific locations.

**Specific Requirements**

* Before Registration, users can view the basic content regarding some featured birds that will include a brief description, a picture, a video and a sound clip. Users will be able to click on a Sign up and a Login button which will be displayed on this page at the top right corner.
* New users will register in the app by providing basic personal information to create their profile.
* After registering/login, the user will view a **Home** page, where the user can view 4 sections – The first is the **Upload** section, where there is an Upload media button, highlighted for the user, to demonstrate that this is one of the main features of the app. The second is **My Library** (folder structure), where the user can view the info/summary of contents My Library, and a button to go to My Library. Third is the **News** section, where a link is provided to go to the Newspage. The last section is **Featured Birds** Collection, where users can view a scrollable horizontal-view list containing bird’s image and name, with a link to go to the Featured Birds page.
* Users can view the **Menu** which they can open by clicking on 3 dots on the top right corner of the screen. In the Menu, users can view 6 options - Profile, Featured Birds, Notifications, News, Settings, and Logout.
* In the **Toolbar** on the Home page, there are 5 options: Home, Search, Upload, My Library (folder structure), Favorites.
* In the **Search** page, users can search birds by filters (name, location/region). The search results are displayed via a vertical-view list containing the image and name of the bird. By clicking on any bird in this list, the user can view the Bird’s profile page.
* In the **Bird’s profile** page, users can view 3 tabs. The first tab is **Description** – users can view the enlarged image of the bird and relevant description of the bird including name, biome, habitat, location/region, general description. Additionally, a user can add the bird to his favorites collection by clicking on Favorites icon. The second tab is **Media** – users can view 3 options namely Images, Videos, Sound clips. In each of these options’ users can view the relevant media content. The last tab is **Location Map** – users can view the live map of the location and the target location will be highlighted/pin-pointed.
* In the **Upload** page, users can click images, record videos or sound clips. This media will be uploaded in the My Library page.
* In the **My Library** page, users can organize their uploaded media in a folder structure. This page contains 3 sections namely Images, Videos, and Sound clips. In each section there is a **Default** folder, in which all the uploaded media is stored by default, when you click/record it. However, users have the option to move any media content to a different folder with any name, or make new folders inside any folder to store media content. Moreover, users can view or delete any uploaded media content, and even rename or delete any folder. While viewing the media content, users can share the media URL on social platforms like Facebook, WhatsApp, etc.
* In the **Favorites** page, the user can view the vertical-view list of the birds he added to his Favorites collection. By clicking on any bird in this list, the user can view the Bird’s profile page, just as in the Search page.
* In the **Featured Birds** page, users can view the vertical-view list of the birds which are in the Featured Birds collection. By clicking on any bird in this list, the user can view the Bird’s profile page, just as in the Search page.
* In the **News** page, users can view the latest news related to birds.
* In the Settings page, the user can turn ON/OFF the option to receive a notification if he is in close proximity to the location of featured birds or Favorite birds. Users can even set the proximity radius from their location to the location of a featured/Favorites bird.
* User will receive a **notification** if he is in close proximity to the location of any of his Favorites bird collection or Featured birds, provided he has set it to ON this in the Settings page. He can also set the proximity radius in Settings. When the user clicks on the notification, the Notifications page will be opened.
* In the **Notifications** page, a list of notifications is displayed. Each item of the list contains Notification description on the left side and timestamp of the received notification on the right side. When the user clicks on any item in the list, then the **Birds list** will be displayed (just like in the Search page) containing those birds which are in close proximity to that specific region.
* In the **View Profile** page, a user can view or edit his profile which contains his personal information which he provided on registration. Additionally, users can also change their login password.
* The app will ask the user for various **Permissions** like – location, microphone, and camera, in order to effectively use the app.

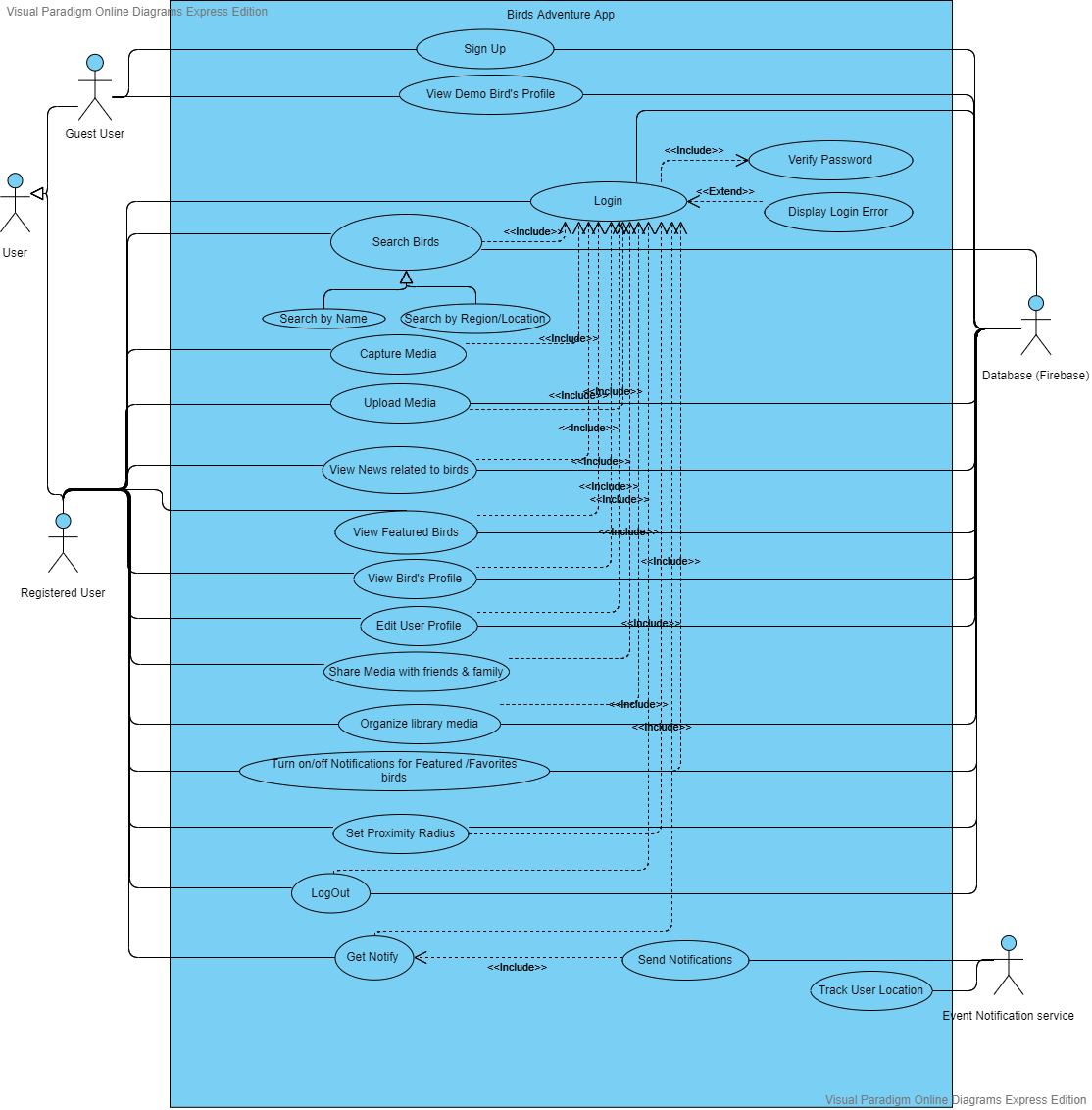
# Functional Requirements

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| --- | --- | --- | --- |
| **Requirement ID** | **Requirement** | **MUST/COULD/**  **SHOULD/WOULD** | **Comments** |
| FR01 | Birds adventure application will allow the user(Guest user) to view the basic  content regarding some featured birds that will include a brief description, a picture, a video and a sound clip before registration to the application . | Would | System will display  the basic information that a user can see before registration and a user can have a basic idea of what the application is. |
| FR02 | Birds adventure  application must have a sign-up screen, where the user must have to enter his/her information such as   username, email ,password, etc. | Must | System will check the username in the database if it doesn’t exist then the information entered by the user will be saved to the database when he will click on the signup button and a new account will be created for the user otherwise if the username exists then it will show a message that this user already registered . |
| FR03 | The Birds adventure application must have a Sign In screen where the user will enter his username and his password. | Must | The system will check the credentials username and password with the database, if a user is a valid user then it will direct him to the home page else it will show a message that this user doesn’t exist. |
| FR04 | After Signup/Sign In the user must be directed to the home page. | Must | When the user Sign In or Signup the homepage should be the next page to display. |
| FR05 | The Home page must contain  sections such as Camera to capture, my library (user’s personal collection folders) and featured birds. A news section that will lead to the birds related news. | Must | On the homepage the system will display the main functions of the application such as camera, library etc. |
| FR06 | On the homepage a bottom app bar must contain sections such as home, search ,upload ,my library and favourites. | Must | The system shall lead to most of the sections of the application from the homepage so that it is easy to access to the users . |
| FR07 | The application must have a page where the user can see the list of the birds and a search bar will be there where he can search by the bird’s name or location of the bird’s sites. | Must | The system shall filter all the  bird names and the locations of the bird sites, according to the name or location entered by the user. |
| FR08 | On the bird’s list page, a bird’s picture will be there with the bird's name and its site’s location and this list will be a vertical list in an alphabetical order. | Would | The system will fetch a bird’s list and will display the  list of birds with  the pictures ,names and locations of the birds. |
| FR09 | On the bird’s list page ,on the right-hand side  of each bird’s name a favourites button must be there so that a user can directly add a particular  bird to his favourites. | Should | The system shall save that specific  bird’s name to  the database as the user's favourites. |
| FR10 | Application will have a bird’s profile page where a user can view three tabs description ,media and location. In description  a picture  of the bird, it’s size, diet, location, colour, habitats and description of a particular bird can be found, On the other side in media tab a user can find media content like bird’s pictures, can watch its videos and listen to the bird’s sounds. Location tab will lead to a map view with a pin pointing to the bird’s location. | Must | The system should fetch the details and should show the bird’s details in the description tab and media will be included in the media tab and a google map view should be opened when the location tab is opened. |
| FR11 | On the bird's profile page there must be a favourites button to add the bird to the user's favourites list. | Should | The system shall update the favourite details of the user  in the database. |
| FR12 | Application will have a My Collection page(user’s library) which will include the user's personal collection like pictures, videos and sounds. On the collection page user can organize their captured media in a folder structure. This page contains three main sections namely Pictures/images, Videos and sound clips. In each section  the data will be stored in the default folders but user will  have a facility to organize his data in various folders and he can give names to these folders of his own choice. | Must | The system will save the user's collection such as captured pictured videos and recorded sounds into his personal library in respective folders. |
| FR13 | The Application will have a favourites page where user’s favourites will be listed in a vertical list and by clicking on any bird in this list user will be directed to that particular bird’s profile page and a delete button will be on the right hand side to delete a bird  from this list. | Must | The system will display user’s saved favourites and the user  should be allowed to jump into a selected bird’s profile page.Favourites details of the user  should be updated in the database. |
| FR14 | Application will have a user profile with his personal information. | Must | The system shall use the database to retrieve information about the  user and should display it  on the profile page. |
| FR15 | The user must be able to edit or  update   his profile details | Must | The system shall update the database to update information about profile details. |
| FR16 | The user shall be able to change his profile picture. | Would | The system shall update the database to modify the user’s profile information. |
| FR17 | Application must have a camera and a microphone feature. The user can capture pictures and videos of the birds and he can also record the bird’s sounds. | Must | The system will allow the  user to use a camera and sound recorder to capture a picture or a video and to record the sounds of the birds. |
| FR18 | Application must ask user permissions for the camera and microphone access. | Must | The system  must ask the user to set permissions to access the camera and microphone. |
| FR19 | The Application must ask the  user permission for location access. | Must | The system  must ask the user to set permissions to access location services. |
| FR20 | On the settings/preferences page , the user can turn on/off the option to receive a notification if he is in close proximity to the site’s location of a featured bird. User can even set the proximity radius from his location of a featured bird. | Should | The system shall use the online cloud/database notifications service. |
| FR21 | The Application will have a side menu with options like profile, featured birds, news ,notifications, settings and sign out. | Would | The system will direct the user  to the respective pages from these side menu items. |
| FR22 | The user shall be able to view the locations of the sites on the map. | Must | The system shall open the maps. |
| FR23 | On the news page , a user can read news on birds and get to know about the current events related to birds. | could | System will fetch the latest news about the birds and will display these on the news section. |
| FR24 | The Notification page must contain various notifications received by  the user like about his favourite birds and featured birds with notification description on the left side and timestamp of the received notification on the right side. Each notification will lead the user to a page containing a list of those birds which are in close proximity to that specific region. | Must | The system shall use the online cloud/database notifications service. |
| FR25 | The user shall receive a notification if he is in close proximity to the location  of any of his favourite/featured bird’s collections. He can set the proximity radius in settings. | Should | The system shall use the online cloud/database notifications service. |
| FR26 | Users can share the media(captured images, videos and sound clips ) URL with their family or friends on social platforms like Facebook, WhatsApp, etc. | Must | The system shall use the social network integration login to your app and share their actions |
| FR27 | The User must have the option of Log out/sign out. | Must | The system shall log out the user from the application. |

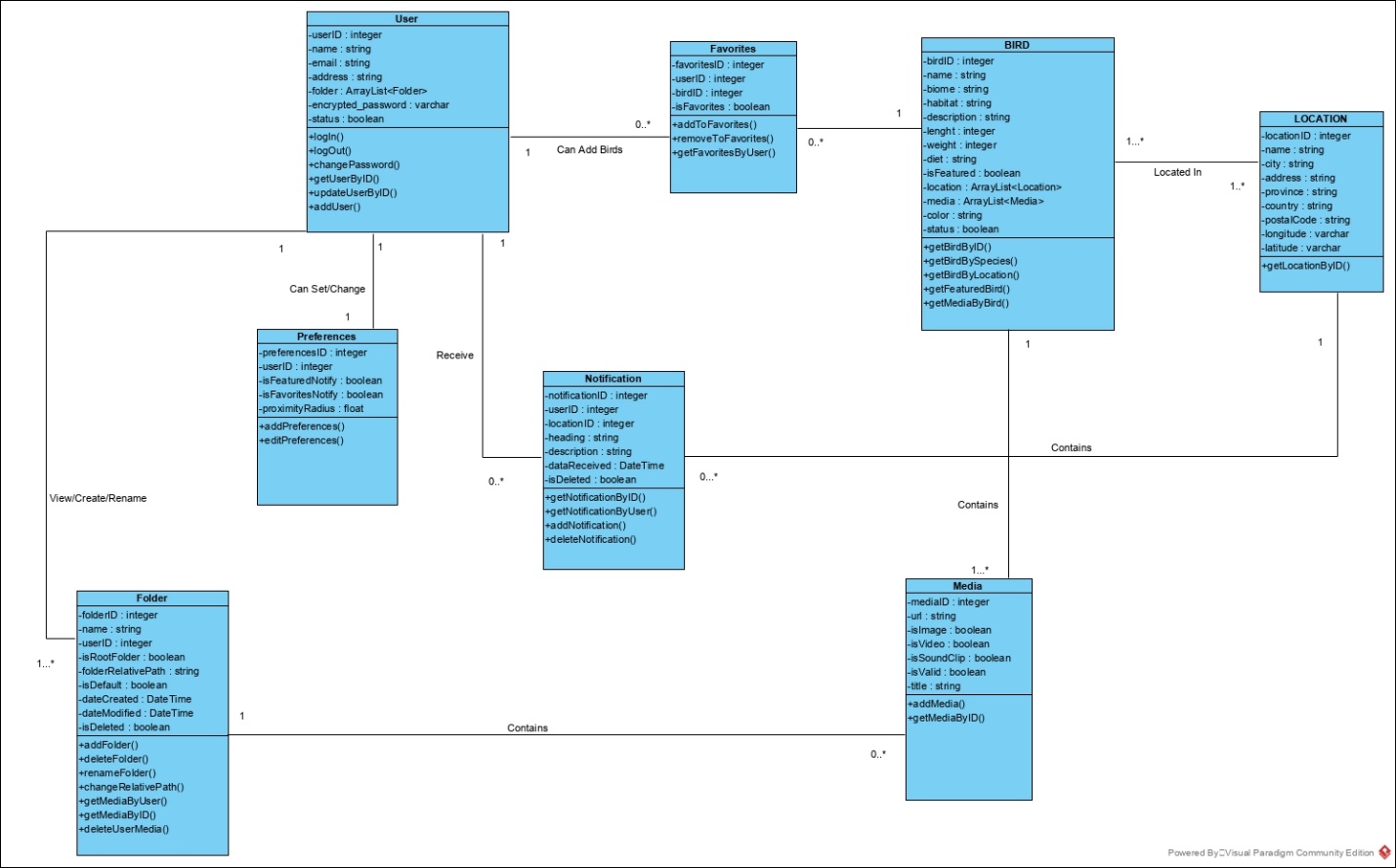
# Non-Functional Requirements

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| **Requirement ID** | **Requirement Statement** | **MUST/COULD/**  **SHOULD/WOULD** | **Comments** |
| NFR1- | The platform must be Android and minimum version should be  Android 5.0 and above. | SHOULD | Required version must be there. |
| NFR2- | The maximum number of users using the app at one time could be Between 900 to 1000. | COULD | Max users can be 1000. |
| NFR3- | The Application will never disclose any personal information of any users. Even in the Search option the user personal Library of birds which include media (pictures, video and sound clips) are not visible to any other user while he/she is searching | MUST | Data is always secured in this application. |
| NFR4- | The Application will be available at all the time on the user’s android device as long as the device is in proper working order. | MUST | Internet connection is a must. |
| NFR5- | In case the system is crashed, the recovery system should provide the last stable version. | MUST | Back-up is a must. |
| NFR6- | The Application can be maintained easily by the admin. The admin can add more features in future | COULD | Future scope. |
| NFR7- | The user data must be saved for period of five months | MUST | Minimum record keeping time is 6 months. |
| NFR8- | There will be no incorrect or outdated information delivered to the user   at any cost. | MUST | Provide correct and valid information to users regarding birds. |
| NFR9- | The Application will provide the real time information of the birds. Users will also get notification as he/she enters a new region automatically. The application will provide up to date information regarding birds. | MUST | Get notification according to the new region. |

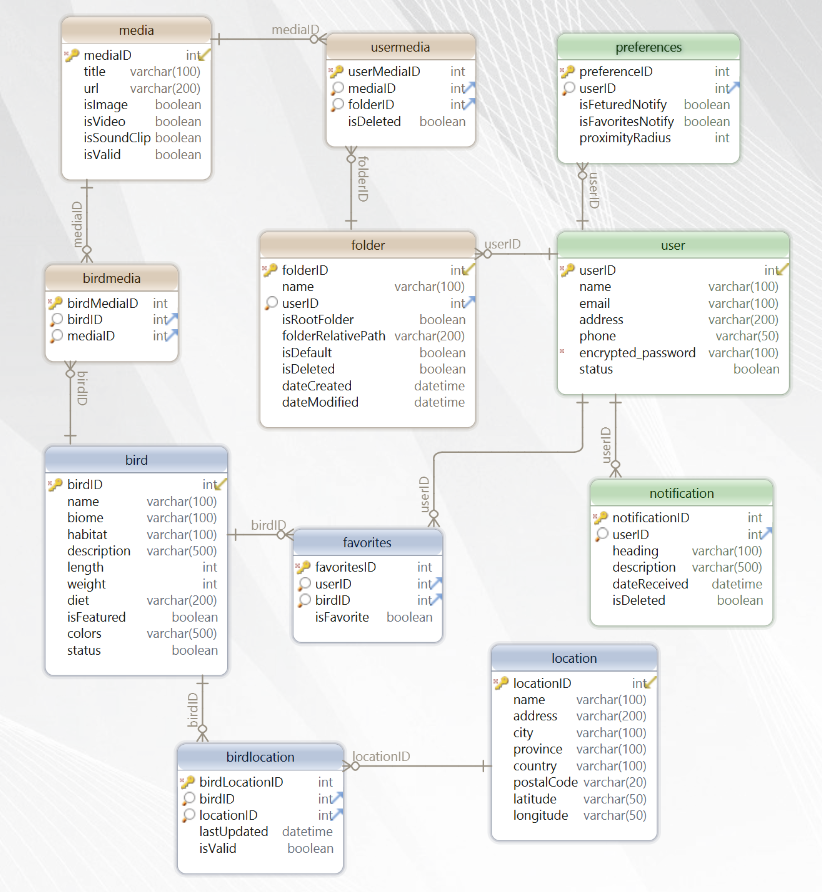
**Use Case Diagram**



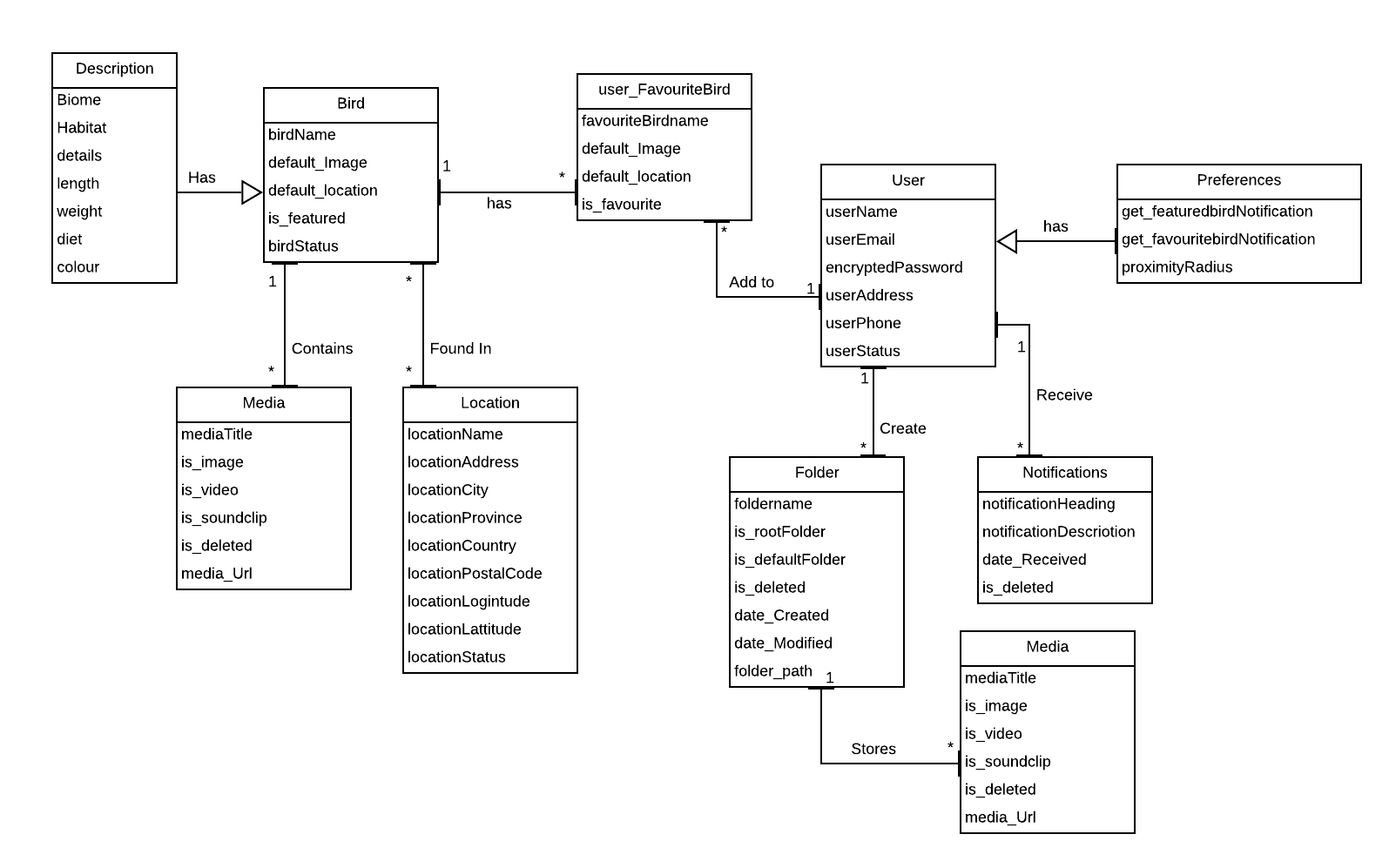
**Class Diagram**



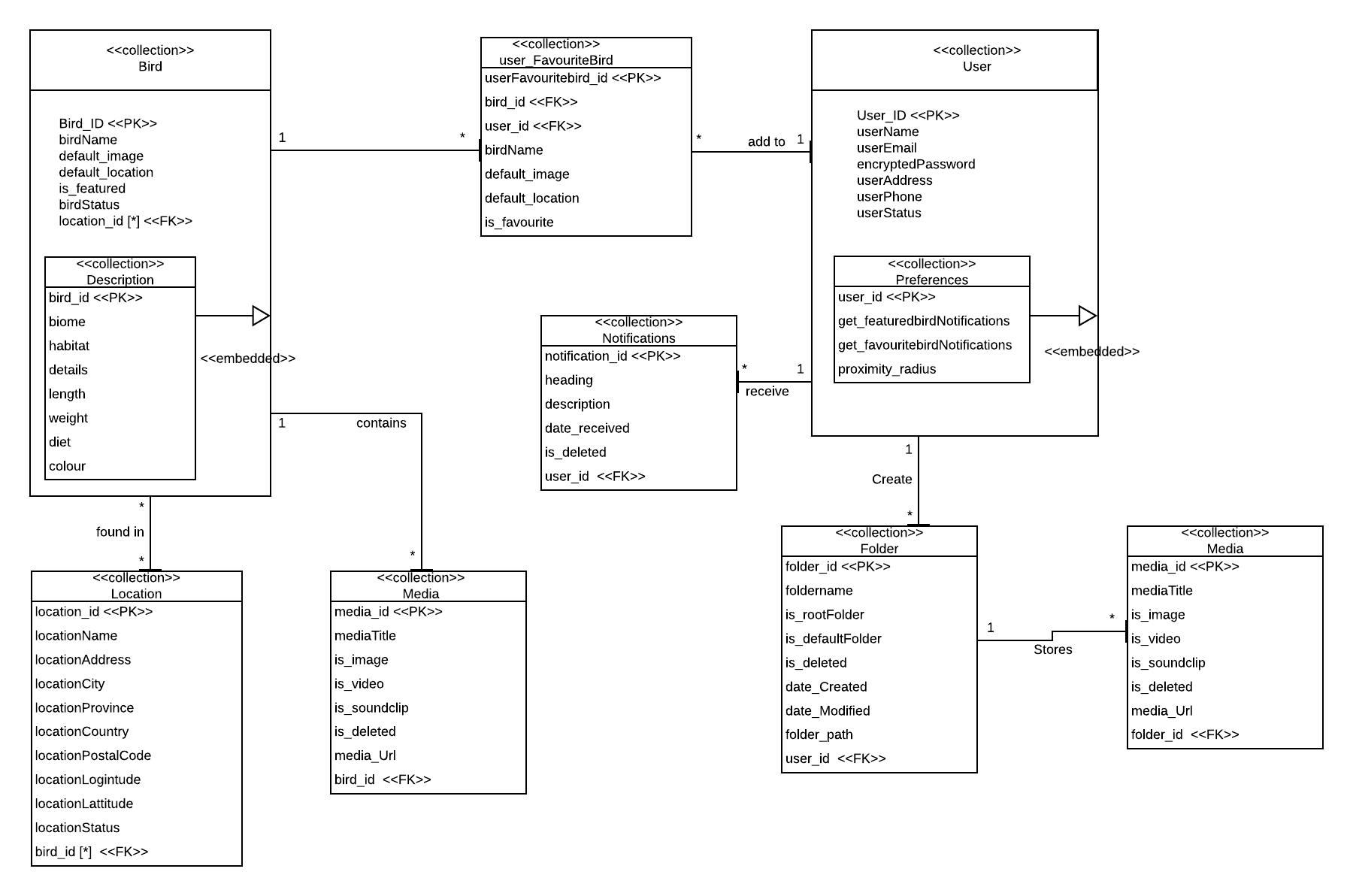
**E-R Diagram**



**Conceptual Data Model**



**Document Data Model**



**Firebase Collection Database - Sample JSON**

{

    "bird": {

        "bird\_id": 1,

        "name": "Sparrow",

        "default\_image": "sampleURL",

        "default\_location": "Montreal",

        "is\_featured": true,

        "status": true,

        "description": {

            "biome": "sample",

            "habitat": "sample",

            "details": "sample",

            "height": "sample",

            "weight": "sample",

            "diet": "sample",

            "colors": ["yellow", "red", "blue", "violet"]

        },

        "media": {

            "media\_id": 1,

            "title": "sample",

            "is\_image": true,

            "is\_video": true,

            "is\_sound\_clip": true,

            "is\_deleted": true,

            "url": "sample URL"}

    },

    "user": {

        "user\_id": 1,

        "name": "sample",

        "email": "sample",

        "encrypted\_password": "sample",

        "addres": "sample",

        "phone": "sample",

        "status": true,

        "preferences": {

            "get\_featured\_notifications": true,

            "get\_favorites\_notifications": true,

            "proximity\_radius": "sample"

        },

        "notifications": {

            "notification\_id": 1,

            "heading": "sample",

            "description": "sample",

            "date\_received": "sample",

            "is\_deleted": "sample"

        },

        "folder": {

            "folder\_id": 1,

            "name": "sample",

            "is\_root\_folder": true,

            "is\_default": true,

            "is\_deleted": false,

            "folder\_path": "sample",

            "date\_created": "sample",

            "date\_modified": "sample",

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                "media\_id": 1,

                "title": "sample",

                "is\_image": true,

                "is\_video": true,

                "is\_sound\_clip": true,

                "is\_deleted": true,

                "url": "sample URL"}

        }

    },

    "user\_favorite\_birds": {

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        "user\_id": 1,

        "bird\_id": 1,

        "bird\_name": "sample",

        "default\_image": "sample URL",

        "default\_location": "sample",

        "is\_favorite": true

    },

    "location": {

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        "address": "sample",

        "city": "sample",

        "province": "sample",

        "country": "sample",

        "postal\_code": "sample",

        "latitude": "sample",

        "longitude": "sample"

    },

    "bird\_location": {

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        "bird\_id": 1,

        "location\_id": 1,

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        "location\_name": "sample",

        "bird\_image": "sample URL",

        "is\_valid": true}

}