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PART 1

Open Source Coding (Intermediate)

Keagan Tomlinson

Total Score: 3 % Low risk

Submission UUID: e7d648a4-1b1c-660b-075b-5772eeb5d849

Total Number of Reports	Highest Match	Average Match	Submitted on	Average Word Count
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Attachment 1 4 %

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Institutional database (1) **3 %**

1 Student paper

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1 Student paper 3 %

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Implementation

Life360 would have been implemented using Android

Studio. The app would utilize the Android Location API to

access GPS functionality. It would use background services or foreground

services to ensure continuous location tracking while

optimizing battery usage.

The app would integrate with Google Maps API or a

similar mapping service to display real-time location

information.

ANDROID APPS WITH GPS FEATURES

As part of my final year college project, I aim to develop an intelligent virtual assistant

that can provide helpful assistance to users. This virtual assistant will be designed to

efficiently handle a variety of tasks, ranging from answering questions, providing

information, and offering guidance, to conducting basic tasks and executing commands. By utilizing advanced natural language processing and machine learning techniques, the

virtual assistant will be able to understand user queries accurately and respond in a

timely and contextually relevant manner. The project will not only showcase my technical skills in developing an intelligent system but also contribute to the advancement of conversational AI technology.

Introduction

Life360 Life360 is a comprehensive family tracking app that uses GPS technology to ensure the safety and well-being of family members.

Key Features

Real-time location tracking of family members. Geo-fencing: Set up virtual boundaries and receive alerts when family members enter or leave designated areas.

Emergency assistance: Access to panic alerts and SOS features for immediate help.

Pros and cons

dash board show a simple map with pins to all memebers that are linked in a group allowing you to track each other

(tomlinson (Fig 1))

(tomlinson, Fig 2)

this page shows he driving habits of users

(Life360, 2022)

GoBird

GoBird is a bird-watching app that utilizes GPS to help bird enthusiasts identify and locate different bird species.

Key Features

Bird identification: Browse a comprehensive database of bird species and learn about their characteristics and habitats.

GPS tracking: Pinpoint your location and discover nearby birding hotspots. Sightings log: Keep a record of bird sightings and share with other birders.

Implementation

GoBird would have been developed using Android Studio. The app might use machine learning algorithms, such as image recognition models, to assist with bird identification.

GPS functionality would be implemented using the Android Location API to determine the user's location and suggest nearby birding spots.

The app might also leverage the microphone API to record and analyze bird sounds for identification purposes.

Pros and cons

this page shows the bird siteings

on a

map

(tomlinson, GoBird Fig 1)

this page shows

the birs sitings in

a text format

when clicked it

takes you to the

map location

(tomlinson, GoBird Fig 2)

(play.google.com, n.d.)

Submit sightings: Report bird

observations, including species,

abundance, and location, to

contribute to bird conservation

efforts. Personalized checklists: Create

customized checklists for specific

locations or birding trips.

Explore data: Access a wealth of

birding data contributed by users

worldwide.

eBird

eBird is a global bird observation platform that enables users to

record bird sightings and contribute to scientific research.

Key Features

Implementation

eBird would have been developed using Android

Studio.

The app would integrate with the Android Location

API to capture the user's GPS coordinates for

sighting submissions. Backend systems and databases would be set up to

handle user-generated data, including validation

checks to maintain data integrity.

The app might employ caching mechanisms to store

data locally and synchronize with the server when an

internet connection is available.

Pros And Cons

(tomlinson, 2023a)

(tomlinson, 2023b)

this screen

shows all the

birds you

have spotted

and marked

(Team eBird, 2021)

Conclusion: Summarize the benefits of using GPS-enabled apps for

different purposes, including family safety, bird-watching, and citizen science

References

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(2023c). goBird fig 1.tomlinson, keagan (2023d). goBird fig 2.

Source Matches (4)

[1] Student paper 100 %

Submitted paper

[online] Available at:

Original source

[Online], Available at

1 Student paper		83 %
Submitted paper	**Original source**	
GoBird - Guide to Nearby Birds - Apps on	GoBird – Guide to Nearby Birds	
1 Student paper		100 %
Submitted paper	**Original source**	
[online] Available at:	[Online], Available at	
2 ProQuest document		91 %
Submitted paper	**Original source**	
https://play.google.com/store/apps/details?	//play .google.com/store/apps/details	

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Word Count: 2,046
Source: opsc7312_part1_planning and Design_ST10084431.pdf

Global database (2) 1 %

3 Student paper

1 Student paper

Institutional database (1) 0 %

2 Student paper

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2 Student paper 0 %

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Introduction: Logo

Features and designs

Splash Screen / Logo

Login/Registration

Dashboard

SQLite and Firebase Integration

Requirements of the App

Species Database & Profiles

Community Interaction & Sharing

Birdwatching Challenges & Achievements:

flow of logic

KanBan

Reference list

Introduction: In a realm where technology gracefully converges with the natural world, BirdWise takes

flight as a groundbreaking mobile application tailored explicitly for impassioned birdwatching

enthusiasts. As we stand at the crossroads of technological ingenuity and a deep reverence

for the avian realm, BirdWise emerges to enrich the tapestry of birdwatching experiences. This visionary app seamlessly weaves together cutting-edge tools and features, offering an

intricate dance between intelligent bird identification, immersive species exploration, vibrant

community interaction, and bespoke recommendations, all harmonising within the confines

of a handheld screen.

Within the pages of this planning and design opus, we embark on an odyssey to unveil the

nuanced layers of BirdWise—an expedition that navigates through its myriad attributes and

the artistry of its meticulous design. From harnessing the prowess of machine learning for

instant bird identification to crafting captivating gamified challenges, BirdWise embodies a

symphony of technological mastery and the warmth of community spirit. It provides users

with an intuitive means to identify avian species, a portal into comprehensive species

profiles, a platform to share sightings, and a curator of personalised birdwatching journeys. BirdWise stands as an indispensable companion for both seasoned birding connoisseurs

and curious initiates, eager to unfurl the vibrant narratives of the avian realm.

This document serves as our navigational chart, guiding us through the creation of

BirdWise—an expedition that fuses imaginative features with an interface that breathes

seamlessness. As we voyage through project requisites, chart the course of development, and illuminate data management strategies, the vision of BirdWise crystallises. It envisions

an app that artfully intertwines the digital and natural worlds, nurturing an ecosystem where

knowledge blossoms, appreciation flourishes, and a community of avian enthusiasts finds

not only a hub but a sanctuary of shared passion.

Logo

For the creation of our logo, we utilised Silhouette Studio, a powerful design software

specifically tailored for designing with Silhouette cutting machines. The logo design process

took place on August 24, 2023. Silhouette Studio proved to be an exceptional tool, offering a

user-friendly interface and a wide range of features. We leveraged its capabilities to create

and manipulate shapes, incorporate custom text with various fonts, and apply colours and

effects to bring our logo to life. The software's precise alignment and arrangement tools

ensured a professional and visually appealing composition.

Features and designs

Splash Screen / Logo

The splash screen welcomes users upon app launch, featuring the BirdWise logo and app name. It creates an engaging transition from the user's tap to the app's interface, leaving a memorable first impression. The logo embodies the ethos of birdwatching and the app's identity.(Android Developers, 2023a) The splash screen serves as the initial greeting for users when they launch the BirdWise app, captivating their attention with the captivating BirdWise logo and prominently displaying the app's name. This carefully crafted screen facilitates a seamless transition from the user's tap to the app's interface, setting the stage for an immersive bird watching experience. The logo itself encompasses the very essence of birdwatching and embodies the core values and identity of the BirdWise app. Its design reflects the awe-inspiring beauty of birds, capturing their grace, elegance, and vibrant colours. By combining artistic elements with symbolic representations of avian life, the logo establishes an instant connection with bird enthusiasts and conveys the app's commitment to fostering a deeper appreciation for the avian world. The splash screen, with its visually striking logo and impeccable attention to detail, leaves an indelible impression on users, igniting their curiosity and anticipation as they embark on their birdwatching journey with BirdWise.

Login/Registration

Utilising the robust Firebase Authentication service, the login and registration screens offer a trusted and reliable mechanism for user verification and access control. With Firebase Authentication seamlessly integrated into the app's login process, users can confidently log in using their existing credentials, such as email and password, or opt for a hassle-free authentication method like social media sign-in. This not only enhances convenience but also ensures the security and privacy of user data.(Android Developers, 2023a)

For new users, the registration page follows a similar user-friendly approach, guiding them through the process of creating an account securely. By leveraging Firebase Authentication's capabilities, the registration page incorporates necessary validation checks, such as password strength requirements and email verification, to guarantee the authenticity and integrity of user accounts. This instil confidence in users that their personal information will be safeguarded and that they will have a smooth onboarding experience.

The combination of the Firebase Authentication service and thoughtfully designed login and registration screens establishes a robust framework that grants authorised individuals access to their personalised experiences within the app while protecting their data from unauthorised access. This ensures a secure and trustworthy environment for users to interact with the BirdWise community and explore the app's features and functionalities.

Dashboard

The dashboard in the BirdWise app serves as a personalised hub for bird watching activities. Leveraging the power of Firestore and SQLite, it offers users seamless access to a range of

features. Users can effortlessly spot birds, search for specific species, and explore a map highlighting birdwatching hotspots. The combination of Firestore and SQLite ensures efficient storage and retrieval of relevant information, enabling users to access their data quickly and enjoy a smooth and immersive bird watching experience within the app.

SQLite and Firebase Integration

The app seamlessly integrates SQLite for local data storage and retrieval, guaranteeing a smooth user experience even when offline. It leverages the power of Firebase for real-time synchronisation and cloud-based storage of user settings, bird observations, and other dynamic data. This combination of technologies allows for efficient management of both local and cloud-based data, enabling users to access and update information in real-time while ensuring data consistency and reliability across devices.(Android Developers, 2023a)

Requirements of the App

The functional requirements of the app are centred around its core features and user experience. These requirements include:

● Mapping: The app should integrate mapping capabilities to display birdwatching hotspots, user locations, and routes. This feature will enable users to easily identify and explore bird watching locations on a map.(Ellis, 2023)

● Tracking: The app needs to utilise location services to track users' real-time movements. By tracking their location, users can record their bird watching activities, monitor their progress, and gather valuable data about their bird watching experiences.

● Design: The app's user interface should be designed to be intuitive and visually appealing. It should prioritise ease of use, allowing users to navigate the app seamlessly and enjoy a pleasing visual experience while engaging in bird watching activities.

● Bird Identification: The app should include a bird identification feature that allows users to identify bird species they encounter during their bird watching activities. This feature can utilise image recognition technology or user input (such as describing the bird's characteristics) to provide accurate bird species identification. It will enhance the app's educational aspect and help users expand their knowledge of different bird species.

By incorporating these functional requirements, the app will provide users with a comprehensive and user-friendly tool for birdwatching. It will offer mapping functionality, real-time tracking of their movements, and an aesthetically pleasing

design, enhancing their

overall bird watching experience.

Species Database & Profiles

BirdWise utilises a combination of APIs and Firebase to create a comprehensive database of

bird species. Through the integration of APIs from reliable and authoritative sources, such as

scientific databases and ornithological organisations, BirdWise fetches detailed information

about bird species including their habitat, behaviour, migration patterns, and conservation

status. The fetched data is then stored and maintained in Firebase, a cloud-based platform

that offers real-time synchronisation and storage capabilities. By leveraging Firebase's

NoSQL database, the bird species data can be efficiently stored, accessed, and updated. This enables BirdWise to provide users with educational and awareness-building features, such as detailed bird profiles, fostering a deeper understanding of different bird species and

promoting conservation efforts.

Community Interaction & Sharing

The app includes a community interaction and sharing feature that encourages users to

actively engage with fellow enthusiasts and contribute to citizen science initiatives. Users

have the ability to share their bird sightings with the community by pinpointing the locations, uploading photos, and adding notes or descriptions to their sightings. This fosters a sense of

community among birdwatching enthusiasts, allowing them to connect, share experiences, and learn from each other. By contributing their sightings, users also contribute valuable data

to citizen science initiatives, aiding in bird population monitoring and research efforts. The

feature promotes collaboration, knowledge-sharing, and a deeper appreciation for birds and

their habitats within the BirdWise community.

Birdwatching Challenges & Achievements:

BirdWise incorporates a gamification aspect

by offering birdwatching challenges and

achievements to users. These challenges can

vary from spotting specific bird species to

recording a certain number of sightings within

a given timeframe. Users are motivated to

explore new locations, observe different

species, and actively participate in bird

watching activities to unlock achievements

and complete challenges.

The challenges and achievements feature

adds an element of fun, excitement, and

motivation to the user experience. It

encourages users to set goals, strive for

accomplishments, and continuously expand

their birdwatching skills and knowledge. By

engaging in these challenges, users can

challenge themselves and celebrate their

progress as they discover and document

various bird species.

This gamified approach not only enhances

user engagement but also fosters a sense of

accomplishment and satisfaction. It inspires users to explore new areas, learn about different

bird species, and contribute to their own personal growth as birdwatching enthusiasts.

By incorporating birdwatching challenges and achievements, BirdWise creates an immersive

and captivating experience that combines education, community engagement, and

entertainment. It encourages users to actively participate in birdwatching, deepen their

understanding of avian life, and share their achievements with the community, further

enhancing the overall bird watching experience within the app.

flow of logic

The flow diagram represents the logical sequence of actions in the app. It begins with the

user starting the app and being directed to the login screen. After entering their login

credentials, the app checks if the user is authenticated. If they are authenticated, they are

directed to the dashboard screen. The dashboard screen serves as a central hub for the user's bird watching activities. From

the dashboard, the user can access various features. The "Mapping" feature enables the

user to view birdwatching hotspots, their own location, and routes on a map. The "Tracking" feature utilises location services to track the user's movements in real-time, allowing them to

record their bird watching trails and gather data about their activities. The "Bird Identification'' feature allows the user to identify bird species they encounter during

their bird watching activities. This feature can utilise image recognition or user input to

provide accurate identification, enhancing the user's knowledge of different bird species.

KanBan

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https://github.com/users/keaganTomlinson/projects/2

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Source Matches (3)

(1) Student paper — 73 %

Submitted paper	Original source
About projects (classic) - GitHub Docs.	About insights for Projects - GitHub Docs

(2) Student paper — 81 %

Submitted paper	Original source
https://docs.github.com/en/issues/organizing-your-work-with-project-boards/managing-proje	(https://docs.github.com/en/issues/organizing-your-work-with-project-boards/managing-project-boards/about-project-boards)

③ Student paper	73 %
Submitted paper	**Original source**
https://docs.github.com/en/issues/planning-and-tracking-with-projects/customizing-views-in-	https://docs.github.com/en/issues/planning-and-tracking-with-projects/creating-projects/creating-a-project (Accessed