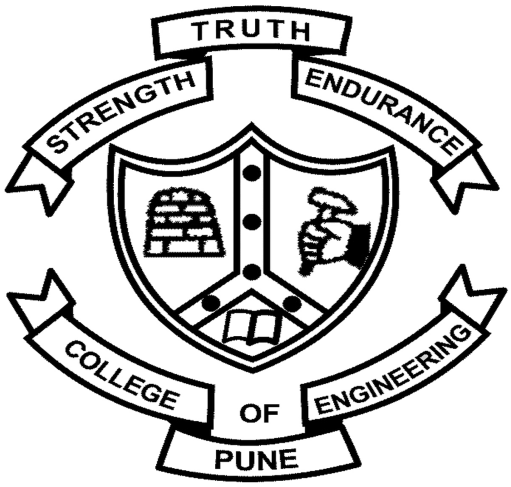
Note!T

an analytical journal

Submitted by

Anuja Padmawar [111408041]
Pranav Sarda [111408053]
Sushmita Halasawade [111408059]



Department of Computer Engineering and Information Technology
College of Engineering, Pune.

Dr. Vandana Inamdar	**Mrs. Tanuja Pattanshetti**	**Mrs.Rohini Sarode**
Head of Department	**Subject Incharge**	**Project Incharge**

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1. Synopsis

When it comes to keeping a journal, stereotypes quickly come to mind; 'Dear diary' is reserved for the awkward recluse. Others see writing merely as a tool, a pragmatic means to an end, certainly without value in and of itself. But science continues to dissolve skepticism. For those sitting on the fence, keeping a journal has tangible benefits: Evoking mindfulness, sharpening emotional intelligence, improving communication skills and healing.

Note!T offers a beautiful and interactive user interface to keep all your secrets inside it. There is password protection to avoid unauthorized access to your secrets. If in any case your system needs to be formatted, Note!T offers safety feature of cloud backup so that your secret can be safe with you on your drive. It can analyse your happy, sad days as per your need. We believe, in the race of this life, everyone is tensed, happy, sad and one needs to record and analyse it for their better future. The intention is to make incorporating journaling into your life smoother, for somewhere, something incredible is waiting to be written.

The idea of the project is to develop an offline personal diary, with some analytical features. This project will be done using Java (as the main language) and JavaFx will be used to develop the UI. In addition to this, SQL database connectivity will be provided. Using this application, the user can protect his/her entries using password authentication. The basic functionalities that will be provided are: making an entry, viewing and updating it, deleting the entries. The entries can either be text or image along with the option of uploading audio as well as video. The distinctive feature of this project will be a weekly and monthly analysis of past records. The analysis will be shown diagrammatically in the form of pie-charts and line-charts (graphs).

DOMAIN – Desktop Application Development, Information Retrieval.

2. Literature Survey Summary

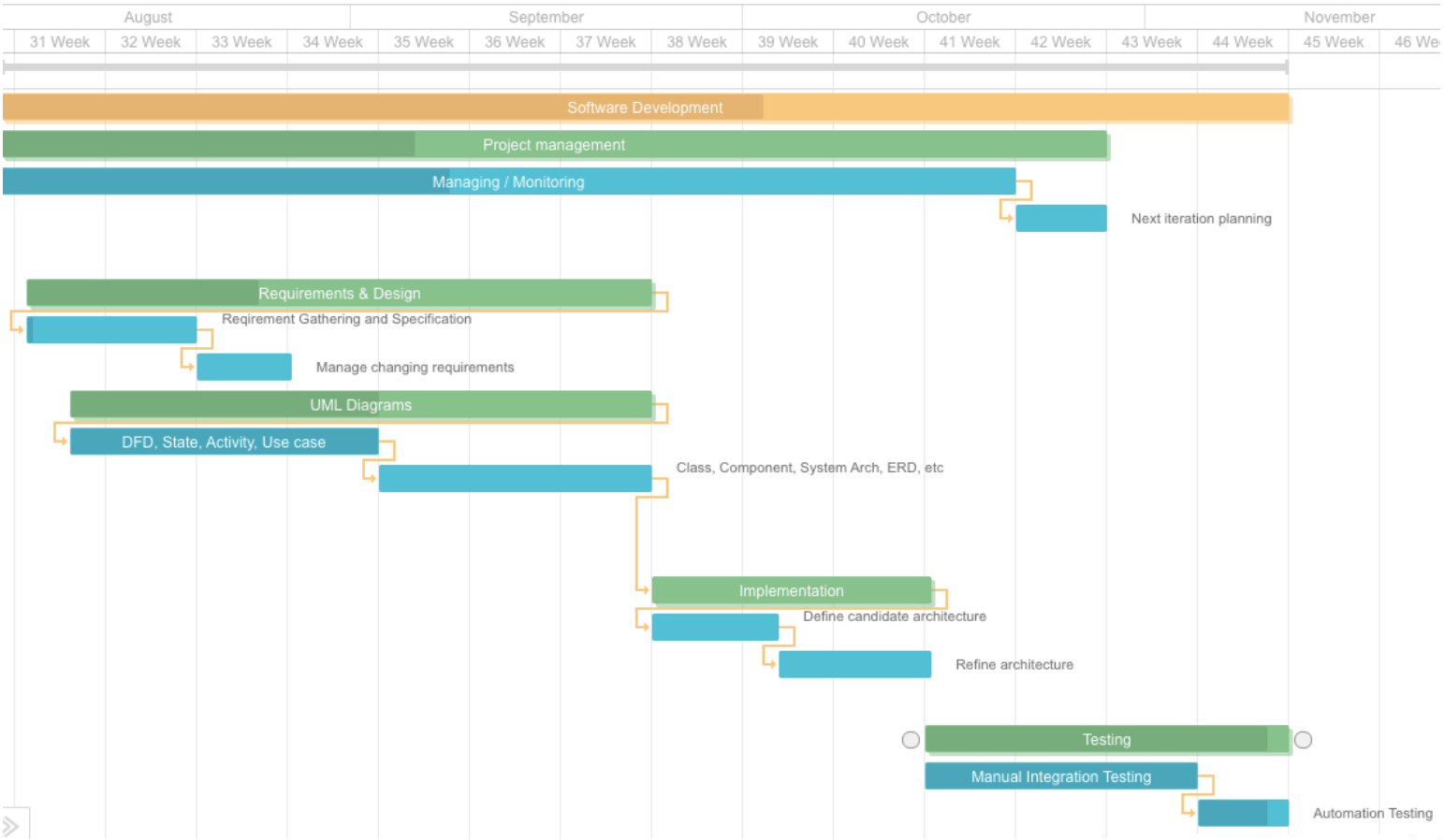
Table is given below

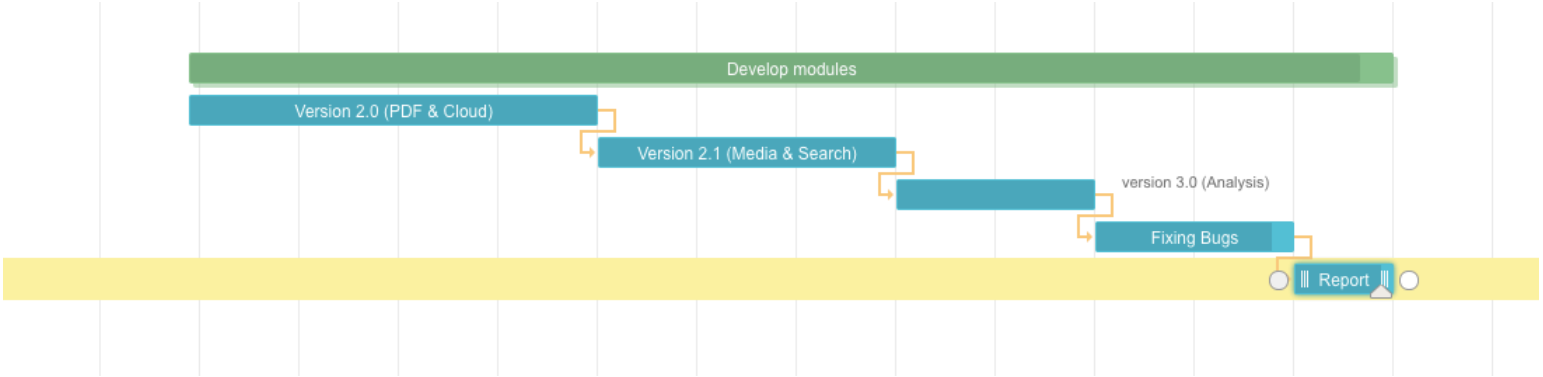
Sr No	App Name	Features	Discription	Limitations
1	Journey	Sync across devices with Google Drive using In-app data - Automatically tracks weather using OpenWeather service, temperature and location (Require network connection) - Keep it secret with Passcode lock - Daily Inspirations - Location Picker & Nearby Places (Require network connection) - Interactive Map (Require network connection) - Synchronises with Journey for Android - Import from Journey & Day One Classic, 2.0	Journey is available online, Android, Mac, Windows and Chrome app. Embark on the journey of self improvement towards better qualities of love, life and health. Record your daily events, relive memories & reflect on them. Start journaling today and see how your life experiences will grow! Available for Android, Android Wear, Chrome desktop, PC, Macintosh & Journey.Cloud.	Its a Chrome Extension . So user needs to install Chrome Browser.Requires Internet.No sentimental analysis.
2	Diaro	WRITE No matter if it's a short note or a lengthy diary entry, Diaro user friendly interface lets you organize everything conveniently SEARCH Find records by keyword, filter them by date, tags, folder or even location SYNC Using Dropbox you can seamlessly sync between the Diaro app on your device and Diaro Online using any web browser	Diaro is a simple-looking app with nicely organized features. It has a great user interface that has nothing complex for the user to handle. The app allows you to write and record anything, ranging from your life moments to your innovative ideas...	Its a Web App.Requires Internet.No sentimental analysis.
3	My Digital Diary	Easy usage. Multiple users are supported (completely seperated from each other) Maximum data security due to Blowfish and Rijndael encryption und SHA1 hashing technology. In	My Digital Diary is a helpful, free Windows program, being part of the category Productivity software with subcategory Diaries. It's available for users with the operating system Windows 98 and former versions, and you can	Its only for Windows.It is a very old application supporting old connection.No sentimental

		addition a "passwort forgot" function is included. You can easily write, read and edit entries. You can freely format you entries with different text settings. You can attach files and pictures to your entries (highly encrypted) Multiple entries per day. Entries can be found via the calendar or the search function. Memoirs function (Memoirs are entries which aren't linked to a date) Integrated backup function. Automatic auto-backup which will be restored when files are damaged.	download it in different languages such as English and German. My Digital Diary is a software that takes up less storage than the average program in the section Productivity software. It's a program mostly downloaded in India, United States, and Indonesia	analysis.

3. Plan/Schedule Details

Gantt Chart :





4. SRS

Revision History

Name	Date	Reason For Changes	Version
Note!T	25/09/2017	Analytical feature added with some bug fixes.	v3.0
Note!T	03/09/2017	Able to play media entries, search engine integrated.	v2.1
Note!T	18/08/2017	Able to takeout printout as PDF, push entries to cloud as text files.	v2.0
DayONE	08/08/2016	UI for creating Account and selecting further options.Added basic functionality to write and display.	v1.2
DayONE	28/07/2016	Revised problem statement with new requirements.	v1.0

1. Introduction

1.1 Purpose

When it comes to keeping a journal, stereotypes quickly come to mind; 'Dear diary' is reserved for the awkward recluse. Others see writing merely as a tool, a pragmatic means to an end, certainly without value in and of itself. But science continues to dissolve skepticism. For those sitting on the fence, keeping a journal has tangible benefits: Evoking mindfulness, sharpening emotional intelligence, improving communication skills and healing.

Note!T offers a beautiful and interactive user interface to keep all your secrets inside it. There is password protection to avoid unauthorized access to your secrets. If in any case your system needs

to be formatted, Note!T offers safety feature of cloud backup so that your secret can be safe with you on your drive. It can analyse your happy, sad days as per your need. You can also carry your printed notebook wherever, whenever you want to read it free time. You can quickly search through past records to find your secret. We believe, in the race of this life, everyone is tensed, happy, sad and one needs to record and analyse it for their better future. The intention is to make incorporating journaling into your life smoother, for somewhere, something incredible is waiting to be written.

1.2 Document Conventions

Title: Arial 32 Bold
Headings: Times 18 Bold
Subheading: Times 14 Bold
Other text: Times 11

1.3 Intended Audience and Reading Suggestions

Different types of reader that the document is intended for:

- Developers
- Project managers
- Marketing staff
- Testers
- Documentation writers

1.4 Product Scope

The idea of the project is to develop an offline personal diary, with some analytical features. This project will be done using Java (as the main language) and JavaFx will be used to develop the UI. In addition to this, SQL database connectivity will be provided. Using this application, the user can protect his/her entries using password authentication. The basic functionalities that will be provided are: making an entry, viewing and updating it, deleting the entries, printing & IR based search functionality. The entries can either be text or image along with the option of uploading audio as well as video. The distinctive feature of this project will be a weekly and monthly user and machine driven analysis of past records. The analysis will be shown diagrammatically in the form of pie-charts and line-charts (graphs).

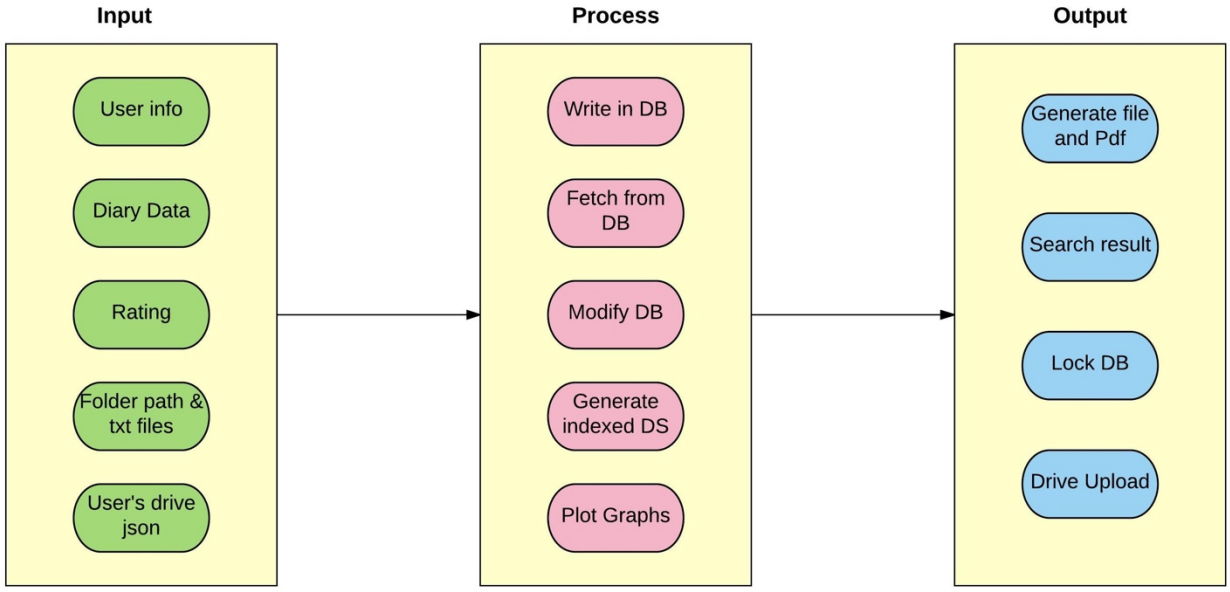
1.5 References

www.diarioapp.com
www.2appstudio.com/journey/
https://journalofbigdata.springeropen.com/articles/10.1186/s40537-015-0015-2

2. Overall Description

2.1 Product Perspective

Note!T is an analytical diary designed for daily diary users. It provides simple and elegant GUI for writing, modifying logs playing media entries, pushing logs as backup files on cloud. It has it's own small search engine and printing as pdf functionality.



2.2 Product Functions

There are some main functionalities:

- Sign up and login functionality.
- Keeping profile of user.
- The user is able to make an entry with title.
- The system accepts text, image and video as media of the day entry.
- The user is able to view and edit past entries.
- The system provides a scale to the user to rate his day.
- On the basis of ratings & machine driven calculations, the system is able to provide selective day wise analysis.

- User can print one pdf like a notebook of his/her record
- User can search throughout his past records.

2.3 User Classes and Characteristics

Note!T can be used by anyone who is interested to keep his/her records as personal diary. It is used to analyze your sentiments from the text user writes. Also provides many other functionalities like pdf, modify, search, etc. It is executable jar file and cross platform compatible provided JRE is installed.

2.4 Operating Environment

Hardware Requirement:

1.For Developers:

1)RAM: 128 MB
2)Disk space: 124 MB for JRE;2 MB for Java Update
3)Minimum Pentium 2 266 MHz processor.

2.For Users:

same as developers.

Software Requirement:

1.For Developers:

1)OS having working version of Java JDK 8+.
2)Multiple OS with Oracle JRE installed.
3)Internet Connection (for some features)
4)IDE and JavaFX gluon scene builder.

2.For Users:

1) OS with Oracle JRE installed.

2.5 Design and Implementation Constraints

Constraints:

1)Hardware and Software requirements should be fulfilled.
2)Authentication is mandatorily required to use application.
3)User need to have internet connection in order to use cloud functionality.

2.6 User Documentation

1) **User Manual:**

Follow the Steps given ahead for a wonderful experience of Note!T:

1) Sign up
2) Sign in with credentials
3) Choose options in dashboard.
4) Every dashboard has components used for purpose written as button label.
5) Click search button for searching in logs, pdf for saving logs as PDF.
6) To modify record select date first.
7) To see particular record from display list click on list item and record of that day will be displayed for editing purpose.

2.7 Assumptions and Dependencies

Assumptions:

1) Proper working device.
2) Latest Operating System with updates.

Dependencies:

1) Good Network.
2) Oracle JRE.

3. External Interface Requirements

3.1 User Interfaces

The Note!T is technically made as very user friendly software so there is no as such requirement to mention something about its wonderful interface.
For development purpose, developer needs to install Gluon JavaFX scene builder to work on user interface.
For users there is no need to install anything as JavaFX comes with oracle JRE/JDK.

3.2 Hardware Interfaces

Note!T supports Hardware where you have a display device, input can be provided and a platform where Note!T can be installed successfully.

3.3 Software Interfaces

Note!T is basically platform independent so it can be used anywhere where JRE is installed. Google drive is used as the database at the server side and SQLite as local side. Authentication is required when this service is to be used.

4. Other Nonfunctional Requirements

4.1 Software Quality Attributes

Note!T is developed for all types of users which includes developers, users, customers, stakeholders, end users.

Some to consider are:

- adaptability,
- availability,
- correctness,
- flexibility,
- interoperability,
- maintainability,
- portability,
- reliability,
- reusability,
- robustness,
- testability,
- usability.

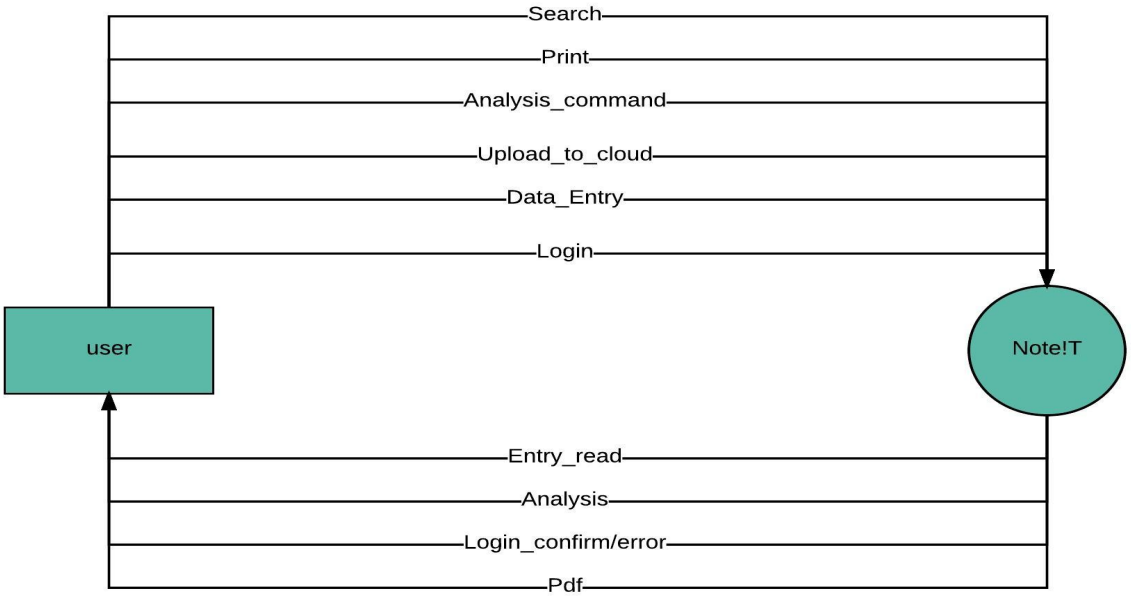
Appendix A: Glossary

Term	Definition
Active Article	The document that is tracked by the system; it is a narrative that is planned to be posted to the public website.
Author	Person submitting an article to be reviewed. In case of multiple authors, this term refers to the *principal author*, with whom all communication is made.
Database	Collection of all the information monitored by this system.
Editor	Person who receives articles, sends articles for review, and makes final judgments for publications.
Field	A cell within a form.
Historical Society Database	The existing membership database (also HS database).
Member	A member of the Historical Society listed in the HS database.
Reader	Anyone visiting the site to read articles.
Review	A written recommendation about the appropriateness of an article for publication; may include suggestions for improvement.

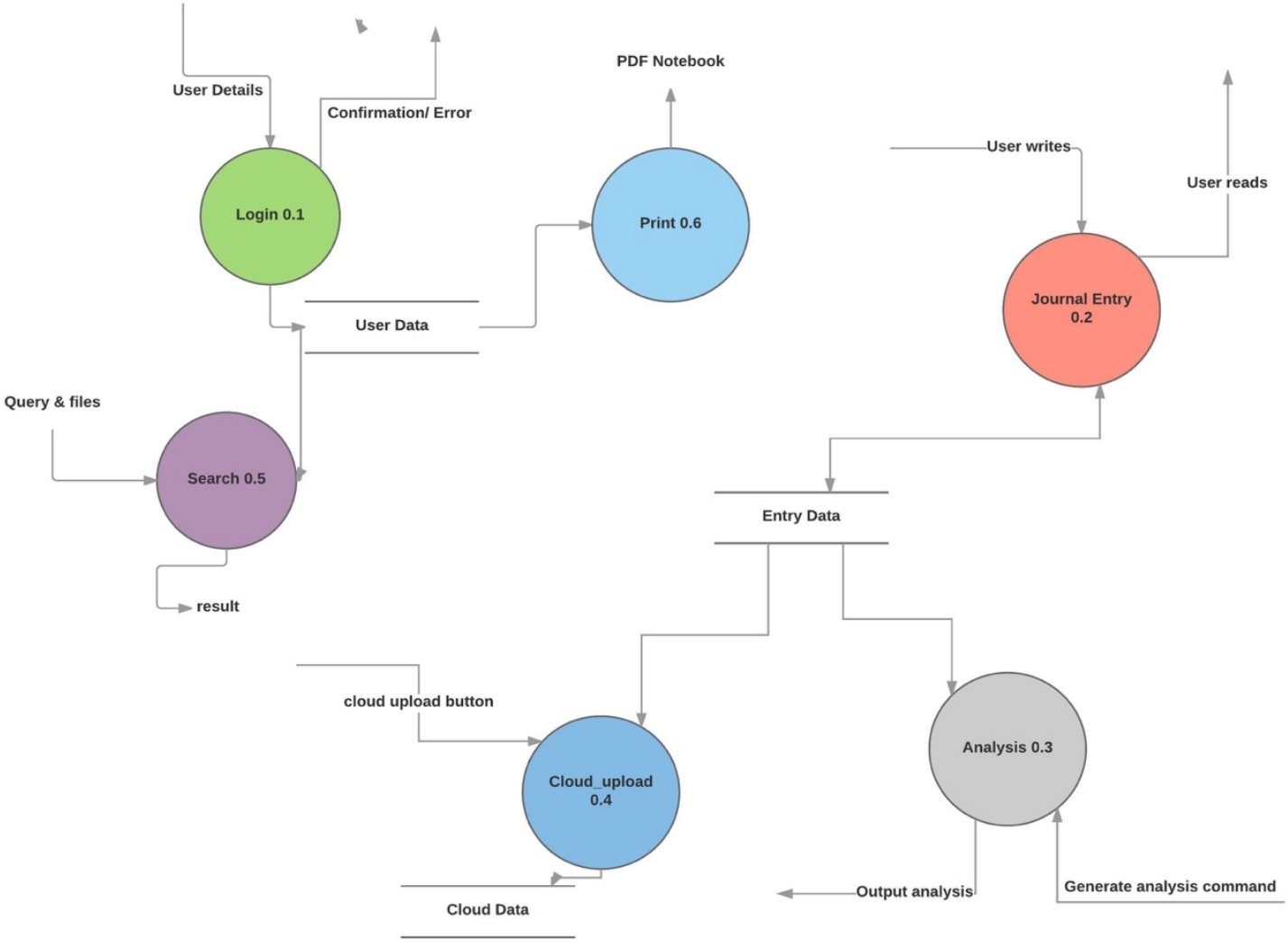
Reviewer	A person that examines an article and has the ability to recommend approval of the article for publication or to request that changes be made in the article.
Software Requirements Specification	A document that completely describes all of the functions of a proposed system and the constraints under which it must operate. For example, this document.
Stakeholder	Any person with an interest in the project who is not a developer.
User	Reviewer or Author.

Appendix B: UML Diagrams

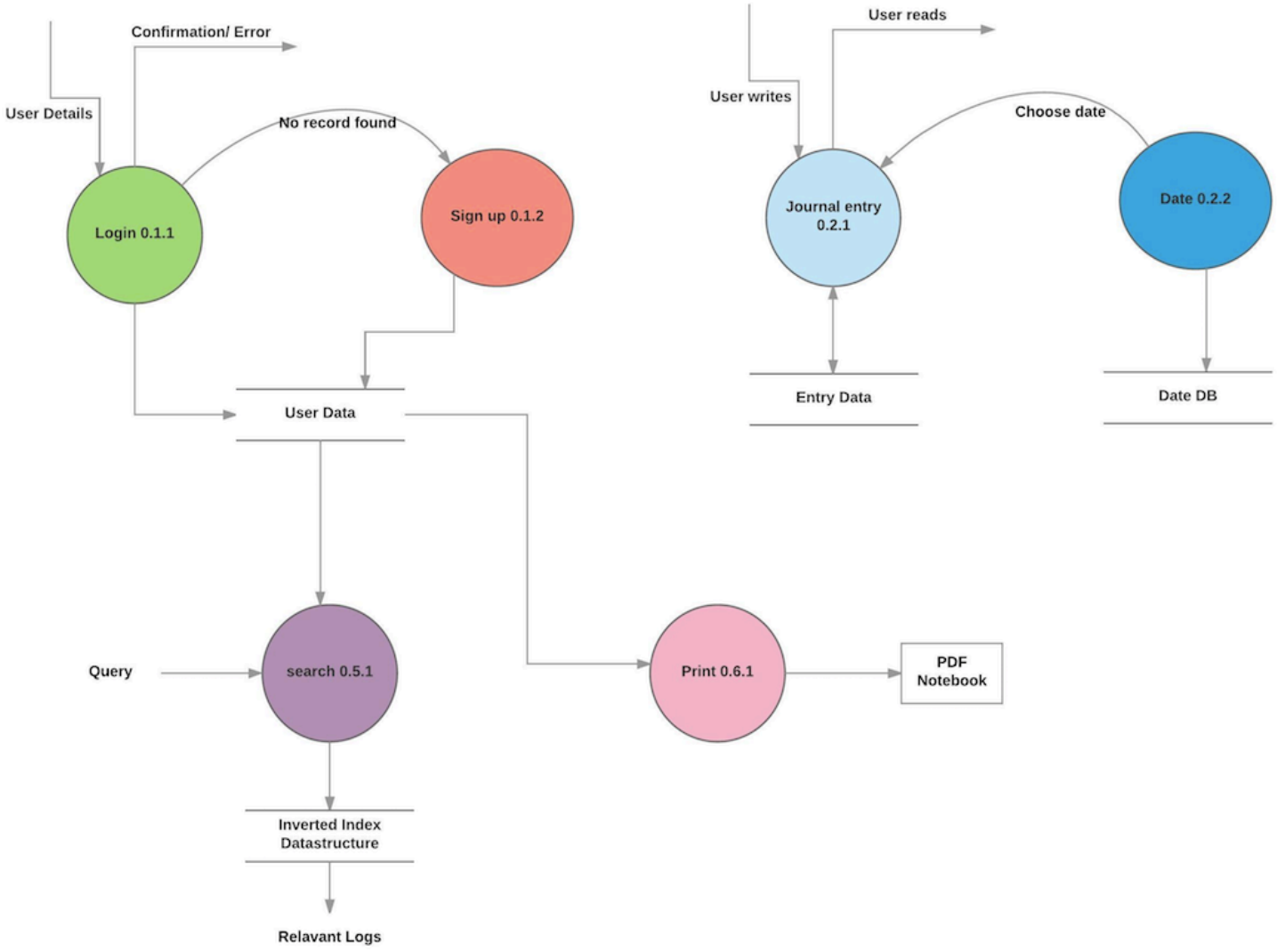
DFD : Level 0



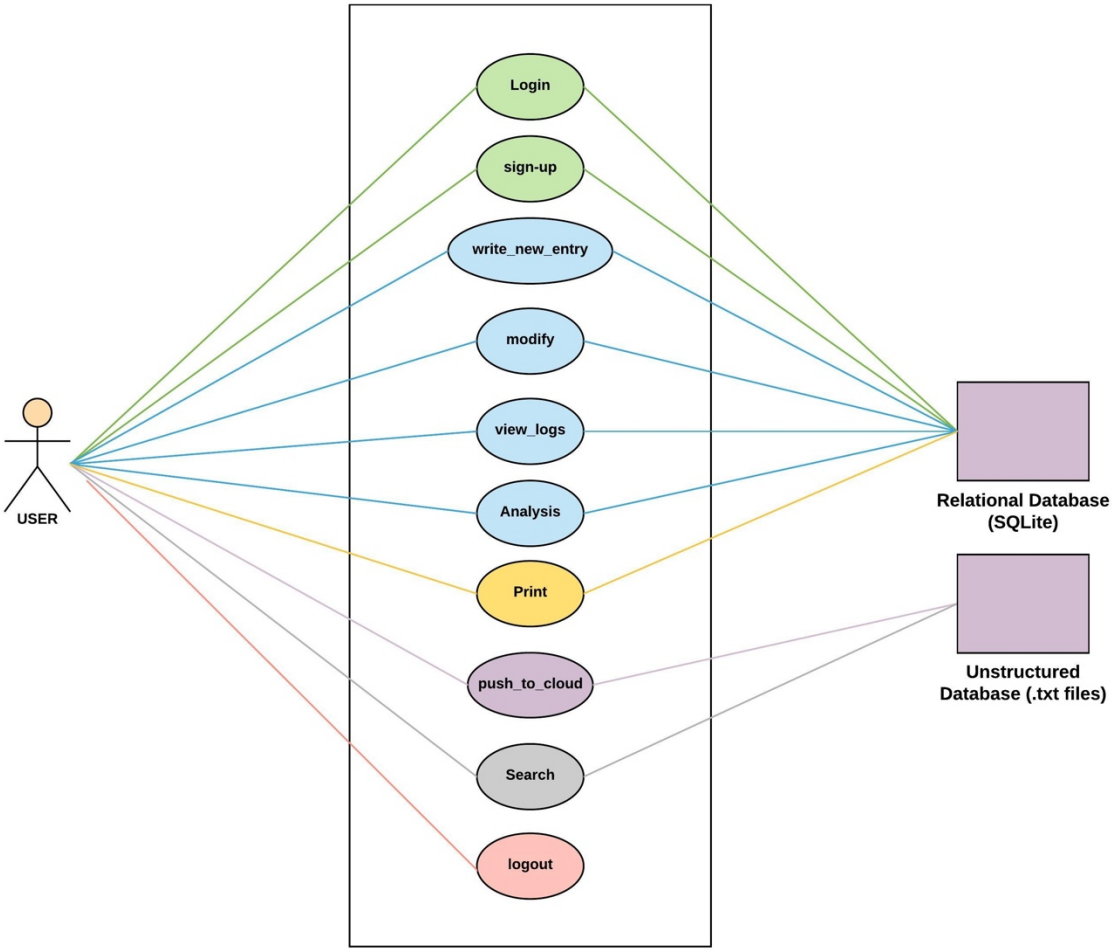
DFD : Level 1


User Details
Confirmation/ Error
PDF Notebook
User writes
User reads
Login 0.1
Print 0.6
Journal Entry 0.2
User Data
Query & files
Search 0.5
Entry Data
result
cloud upload button
Analysis 0.3
Cloud_upload 0.4
Output analysis
Generate analysis command
Cloud Data

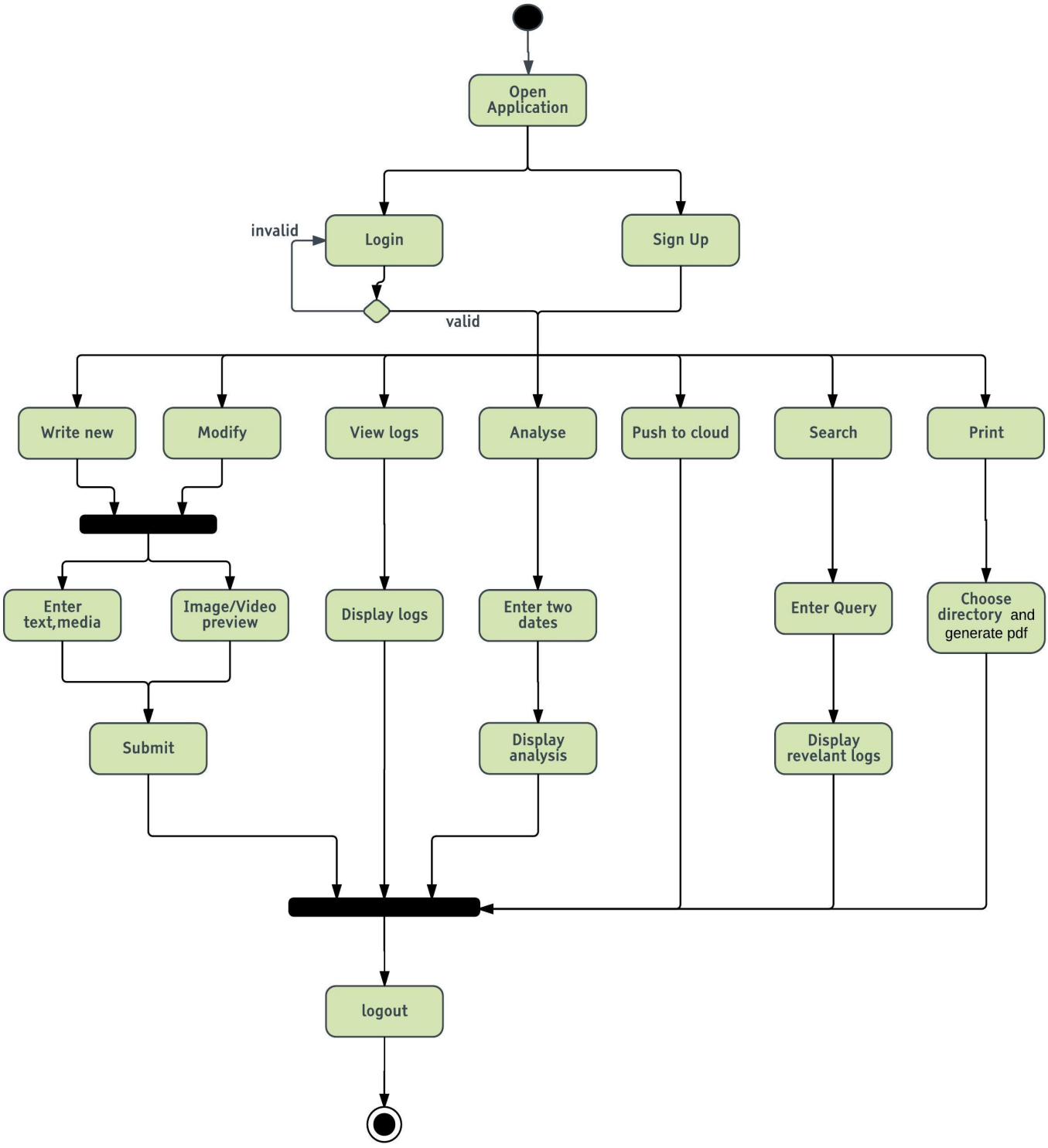
DFD: Level 2


Confirmation/ Error
User Details
No record found
Login 0.1.1
Sign up 0.1.2
User Data
User reads
User writes
Choose date
Journal entry
0.2.1
Date 0.2.2
Entry Data
Date DB
Query
search 0.5.1
Print 0.6.1
PDF
Notebook
Inverted Index
Datastructure
Relavant Logs

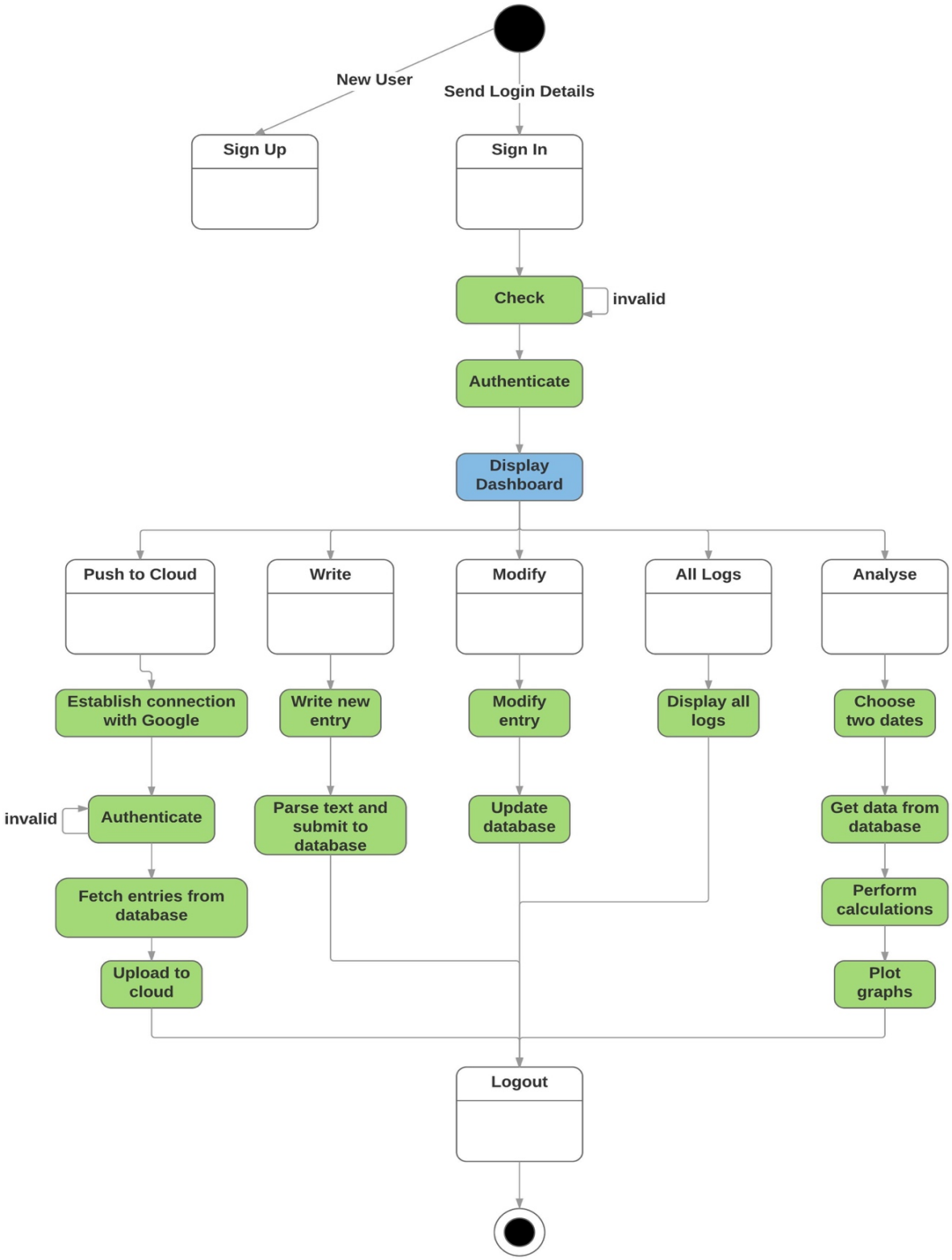
Use case


Login
sign-up
write_new_entry
modify
view_logs
Analysis
Print
push_to_cloud
Search
logout
USER
Relational Database (SQLite)
Unstructured Database (.txt files)

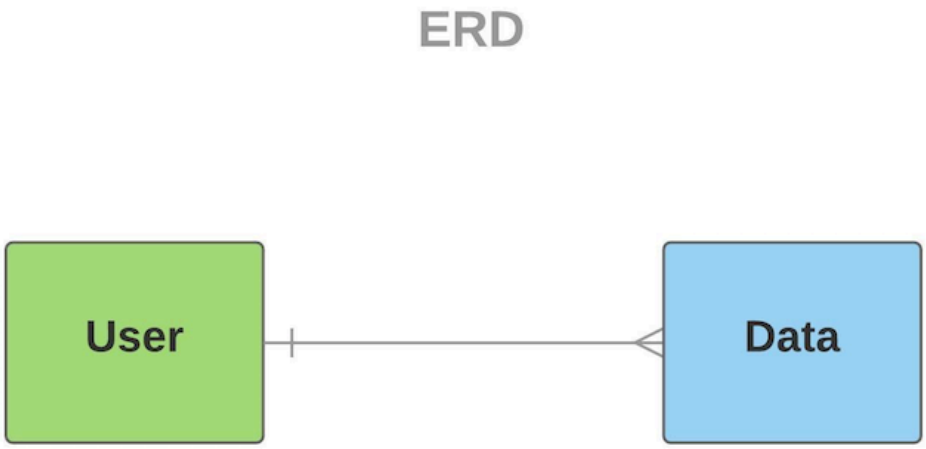
Activity Diagram



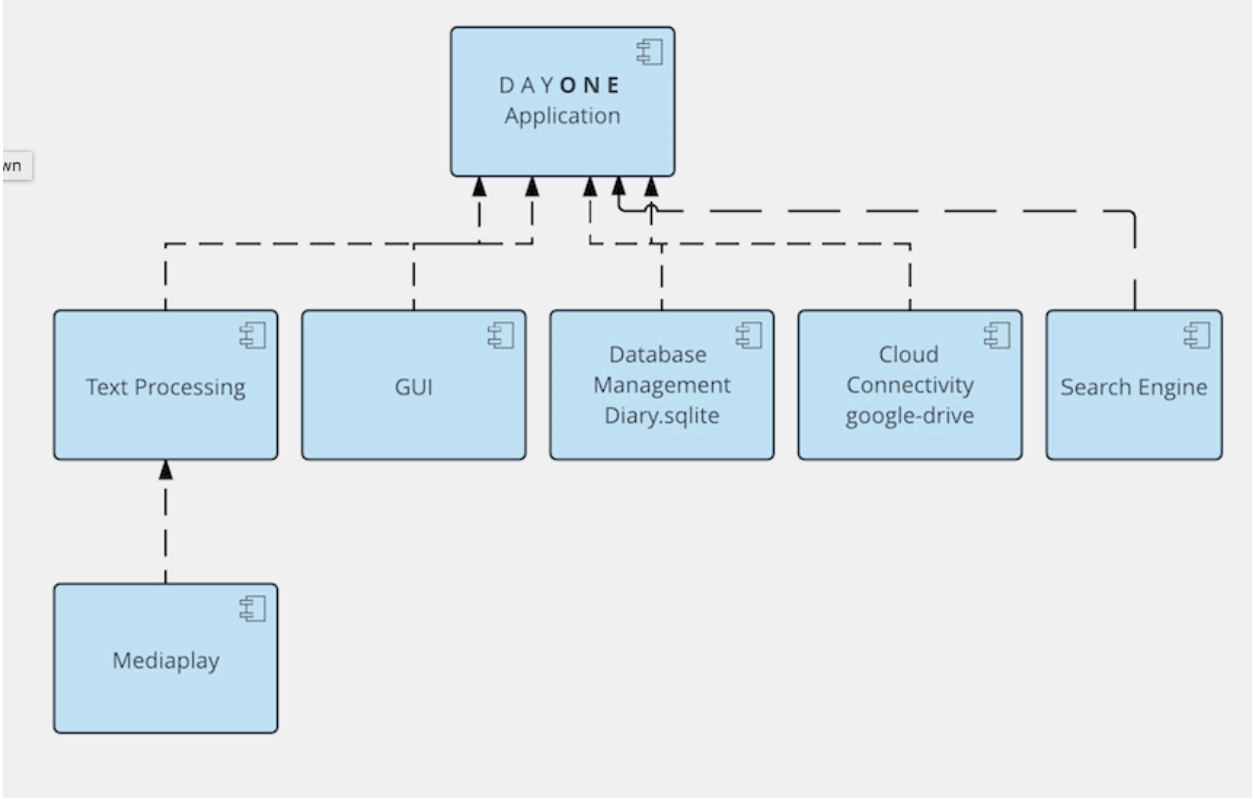
State Diagram :



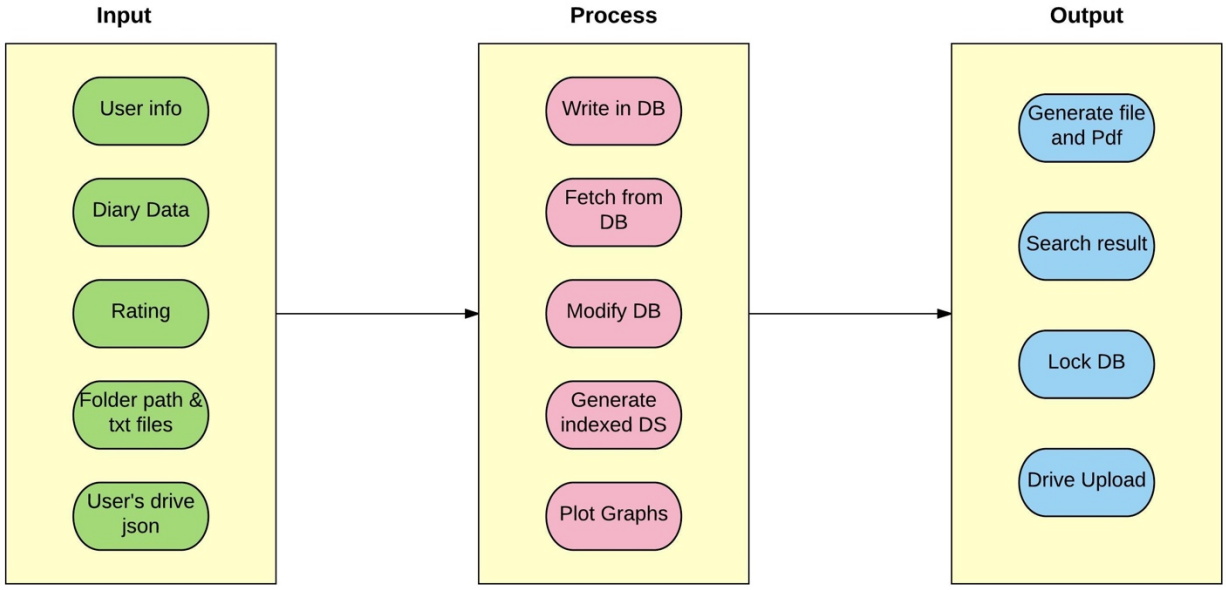
ERD



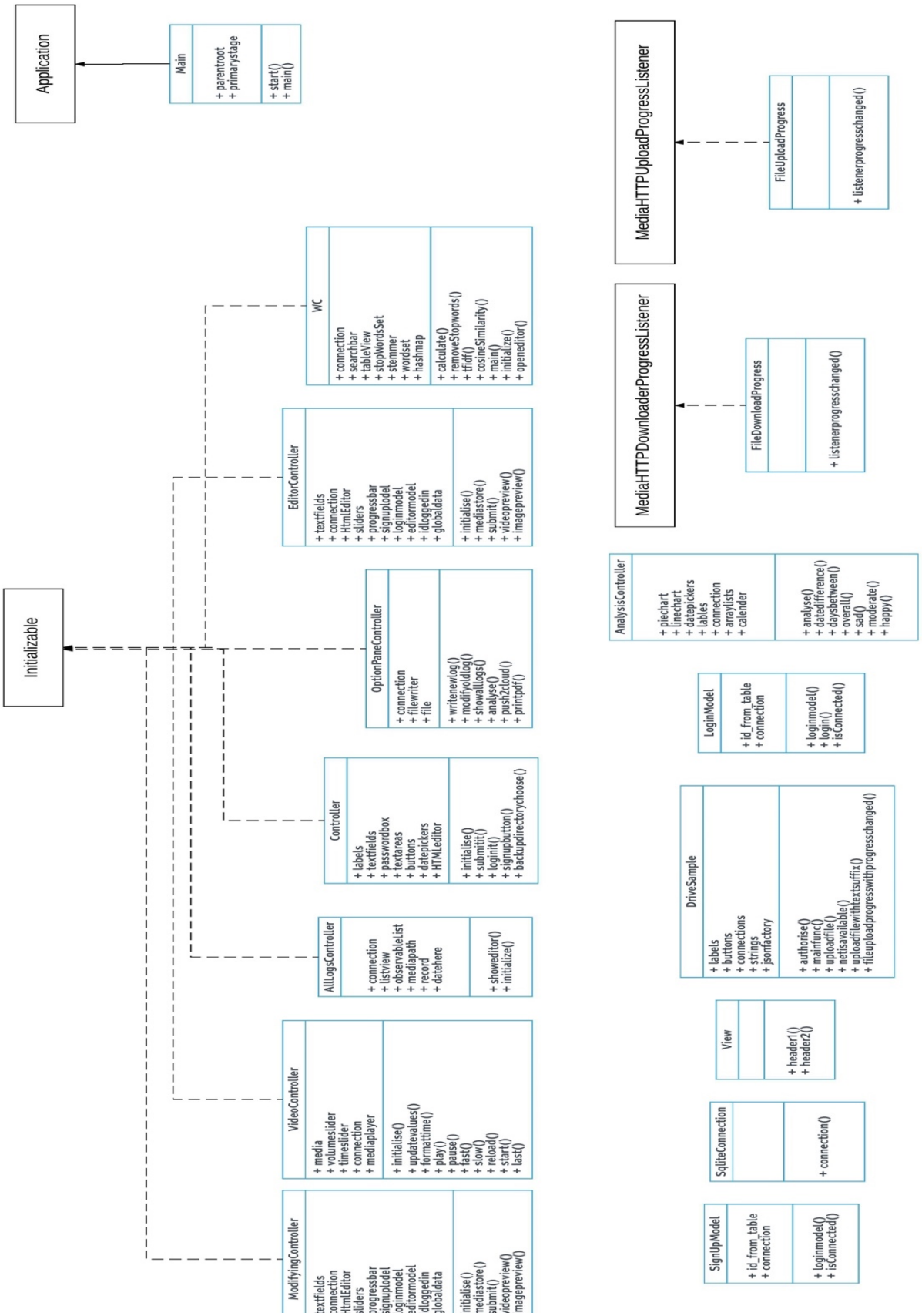
Component Diagram



System Architecture



Class Diagram

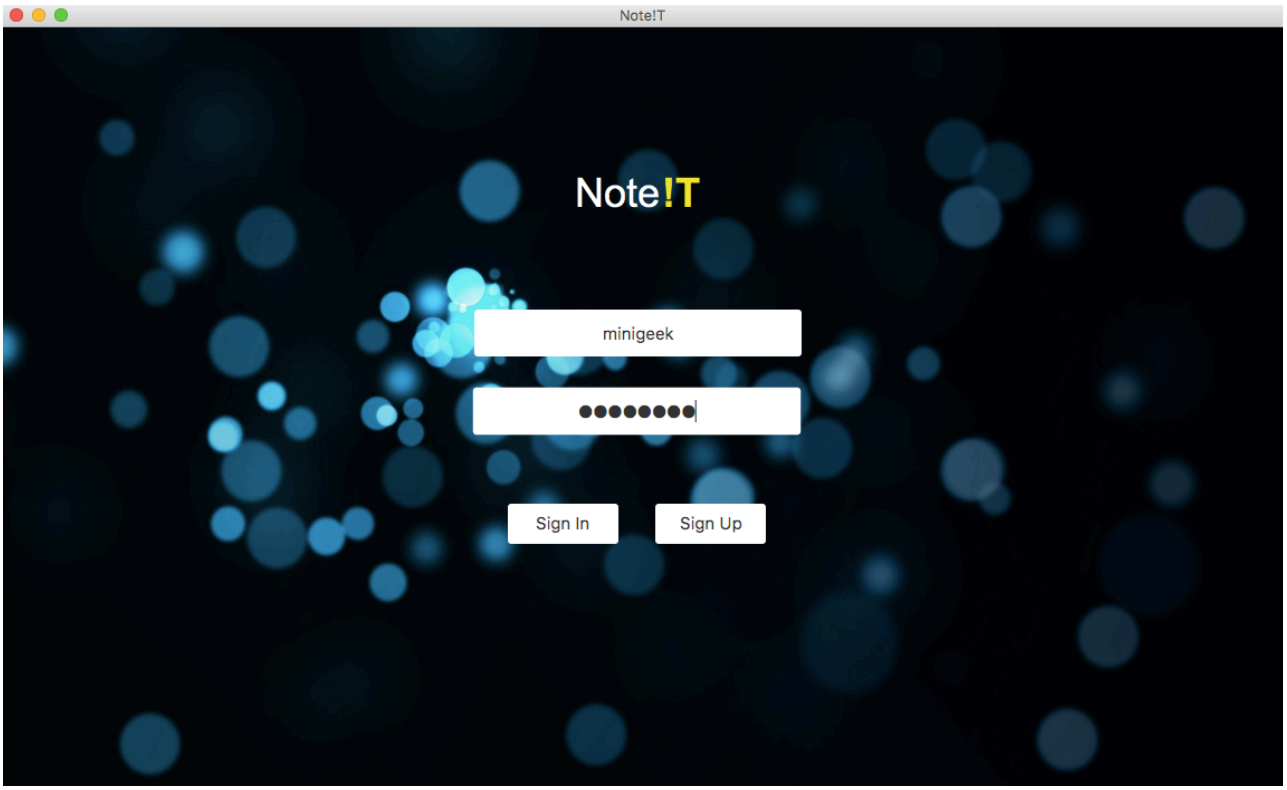


5. Implementation

Modules :

Login

The module allows existing user to access her account. To login successfully, the user has to provide the correct username and password. If entered password is incorrect, an error message is shown.



Login Stage

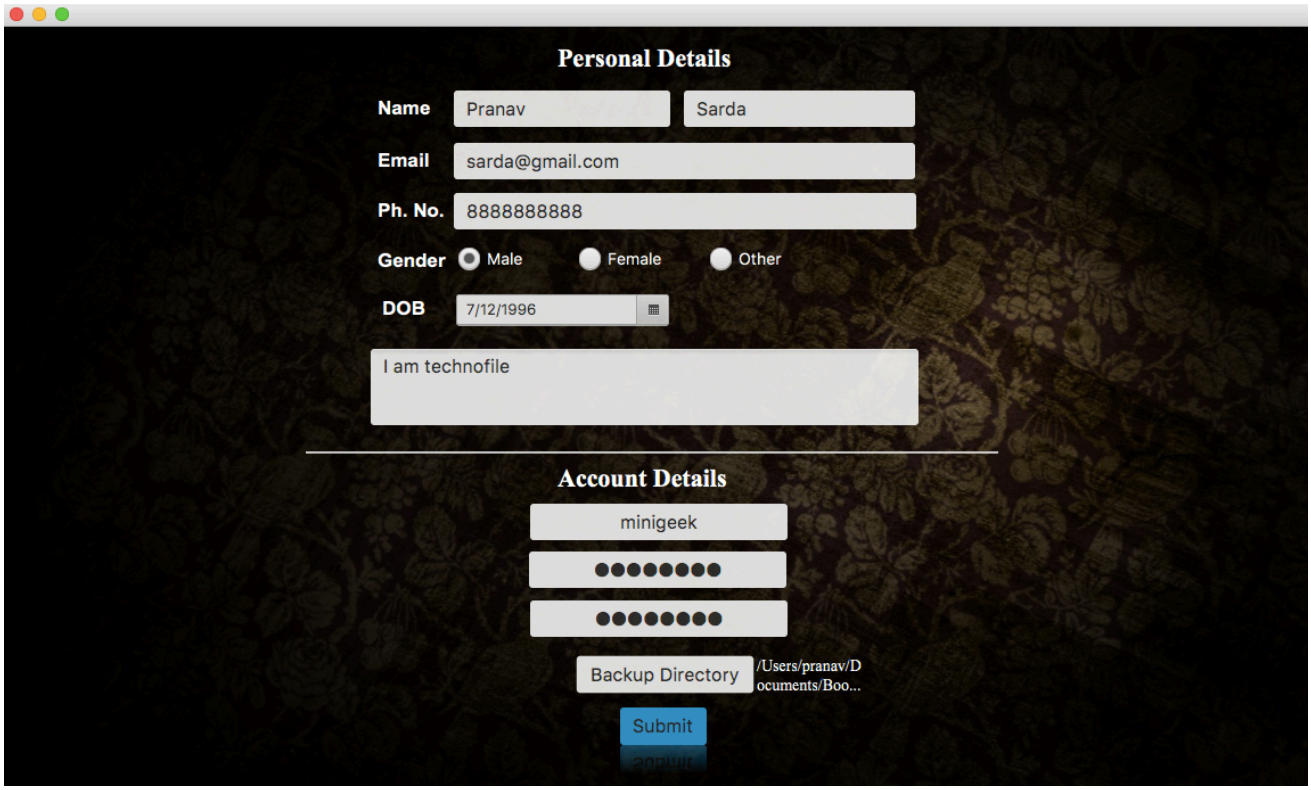
Sign-up

A new user has to sign-up and create her account before she can start using the application. While signing up the following details need to be provided: 1.First name 2.Last name

3.Phone number 4.e-mail id 5.Gender 6.Date of birth 7.Other details (optional) 8.Username

9.Password 10.Back-up directory Numbers and special characters are not allowed while entering name. Also, e-mail id should be of correct format. e.g. sample@gmail.com

Sign-up stage

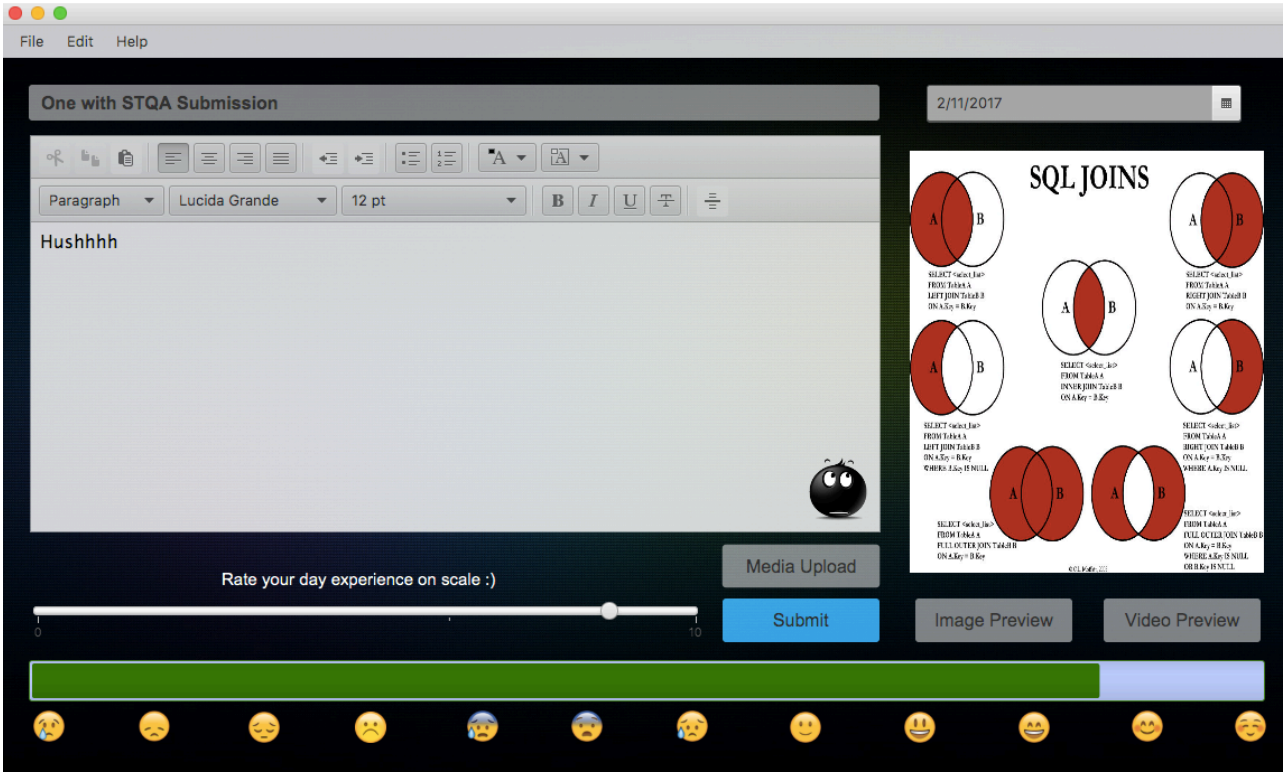


Write new entry

After the user has successfully logged in, she can write a new entry. While doing so, the date is automatically chosen as the current date. The user need to give a title (the default title being 'Title here'.)

The content is to be written in a HTML editor. The user can upload either an image or a video in her entry. The video or image preview can be viewed. Uploading and previewing can be done in a user-friendly manner through buttons.

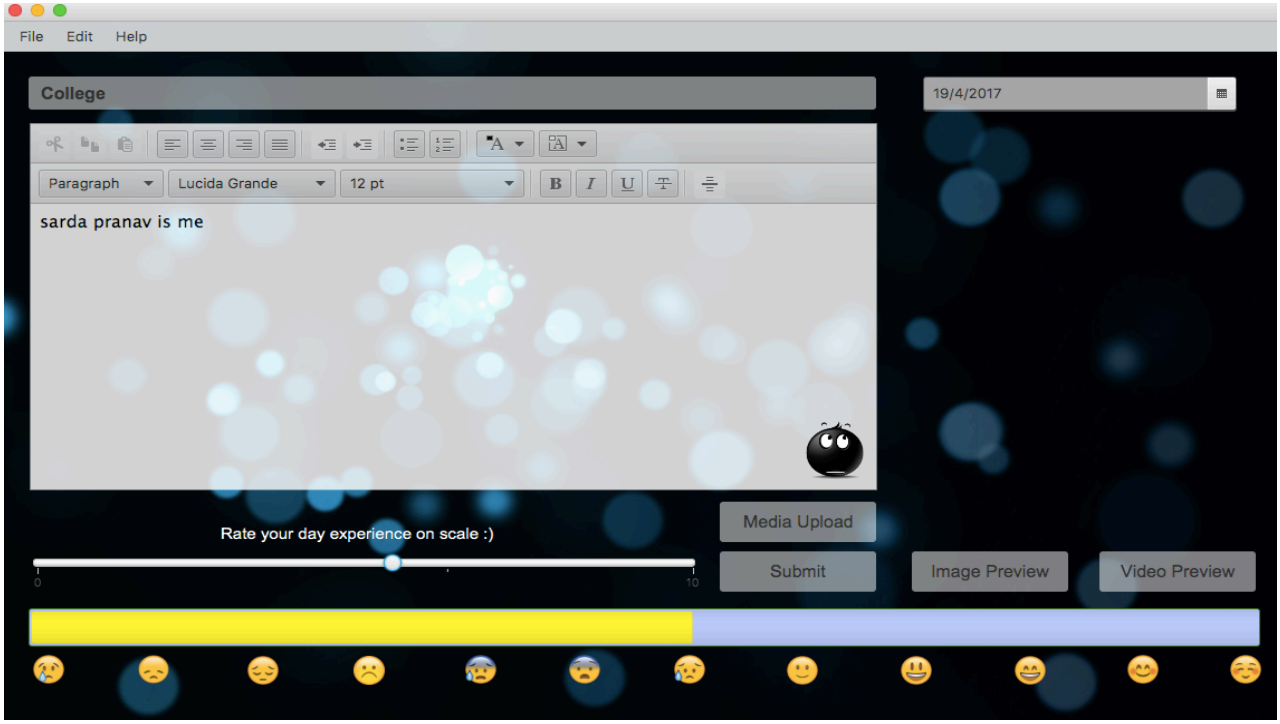
The user needs to rate her day on a scale of zero to ten with the help of a slider.



New log

Modify old entry

The user can modify old entries. After opening the modify window, the user has to first choose the

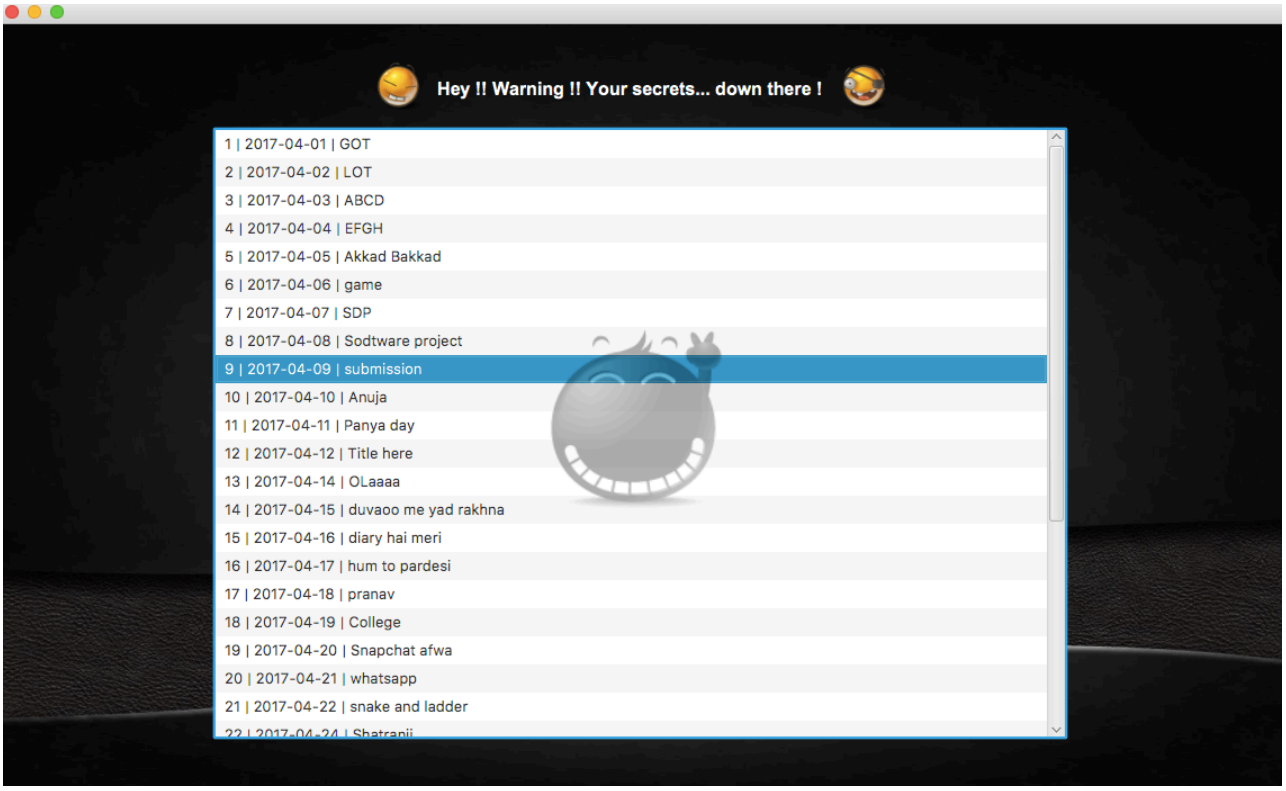


date for which the entry she wants modified. After that the user can change the title, content, media uploaded and the rating of that day. The user interface is similar to that of the previous module.

View all logs

The user can view a log of her entries.

The logs are of the format: Sr. no. | Date | Title The logs are arranged date-wise.

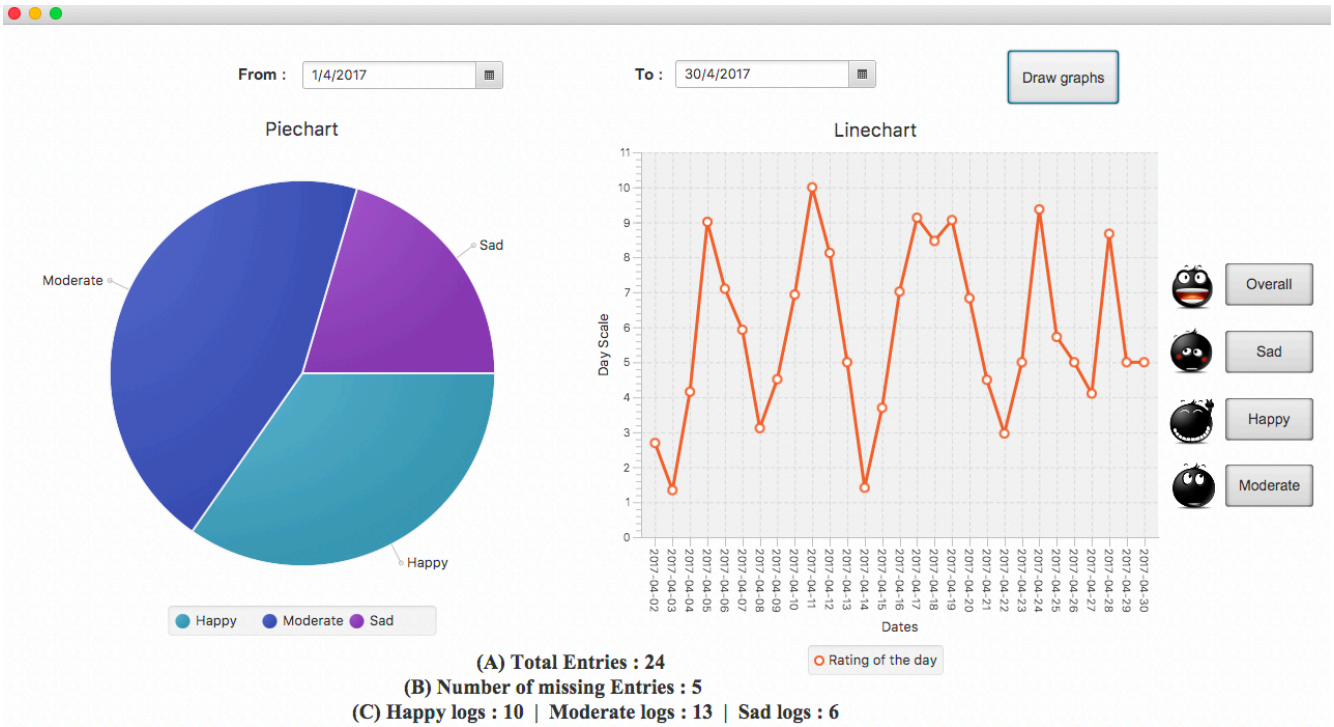


Display all logs

Analyse

This is the feature module of this project. In this module, the user can do analysis of her days based on past entries. The user needs to choose two dates; the duration between which will be analysed. Analysis can be done in four flavours: overall, happy, moderate and sad. A line-graph and a pie- chart depict the analysis.

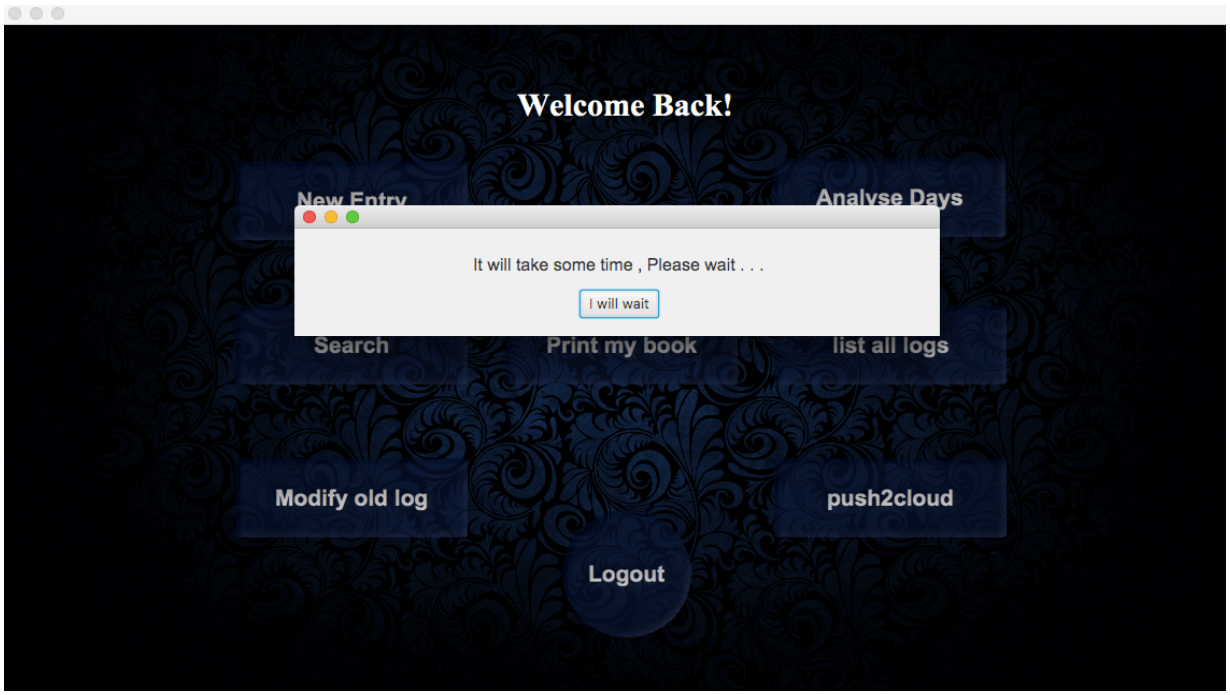
The basis for analysis is the ratings which the user has given for each day. If for some day an entry is missing, then default rating is considered which is five.



Analyse stage

Push to cloud

This module pushes the content of user's entries to the user's google drive account. The text content of the entries are stored in a .txt format in the backup directory (chosen by the user initially

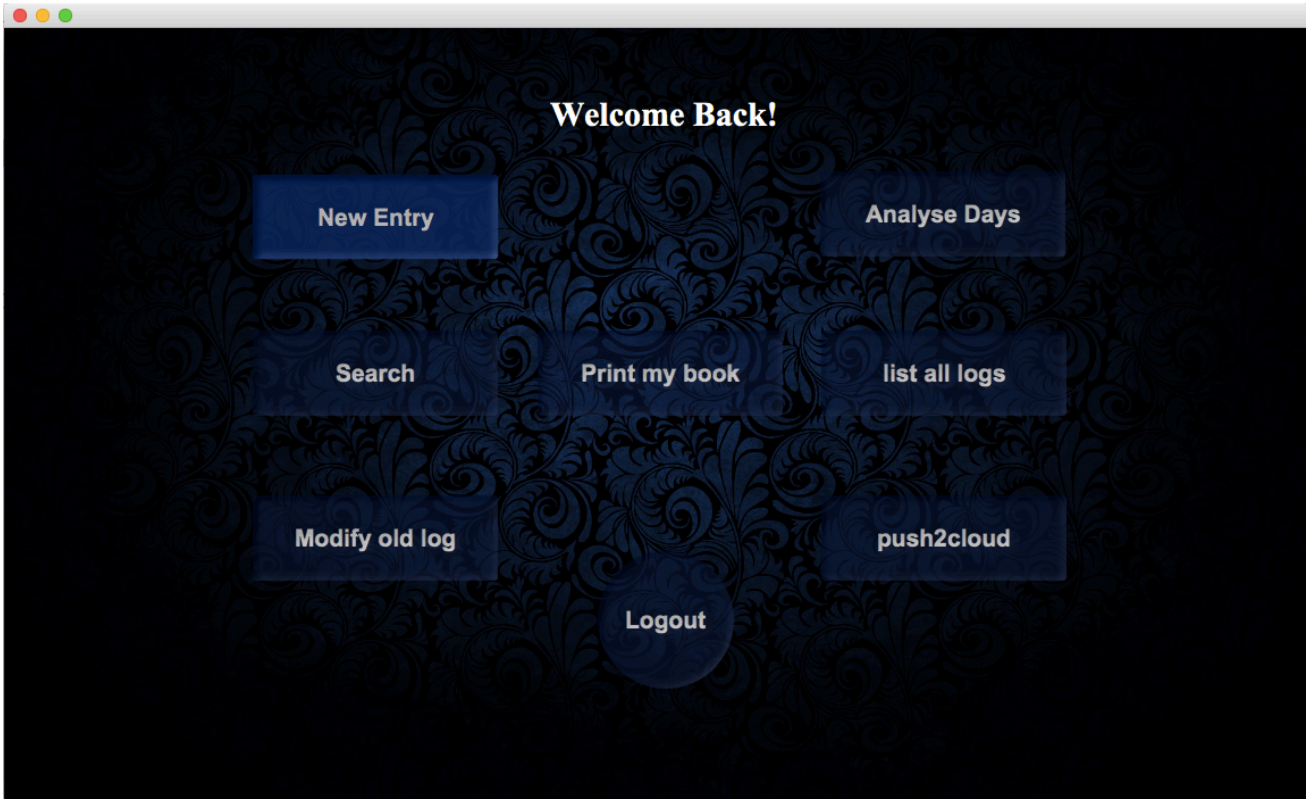


while signing up). These entries are pushed to the cloud cumulatively.

This is achieved using the Drive API of the Google App Engine.

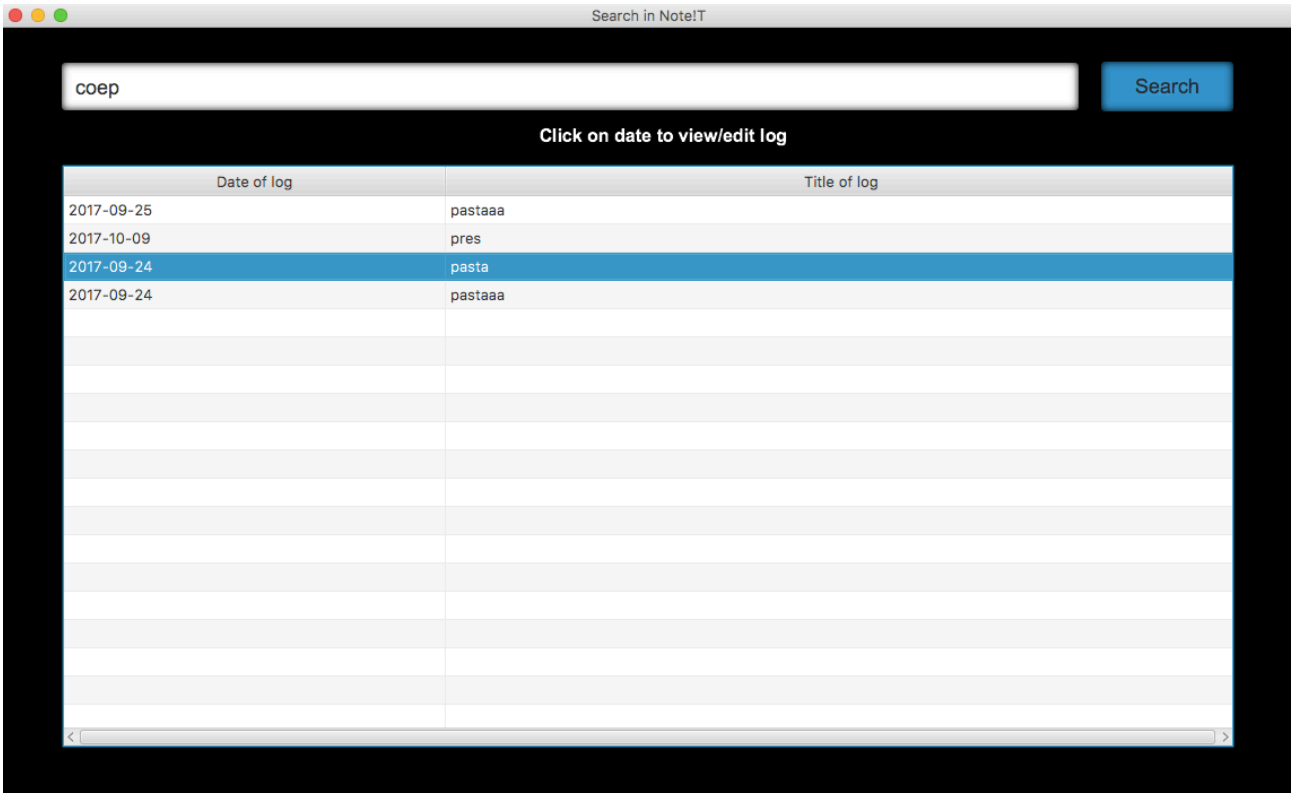
Logout & Dashboard

The log-out module enables the user to sign-out of his/her account. The log-out button is present on the dashboard and takes the user to the sign-in/sign-up page.



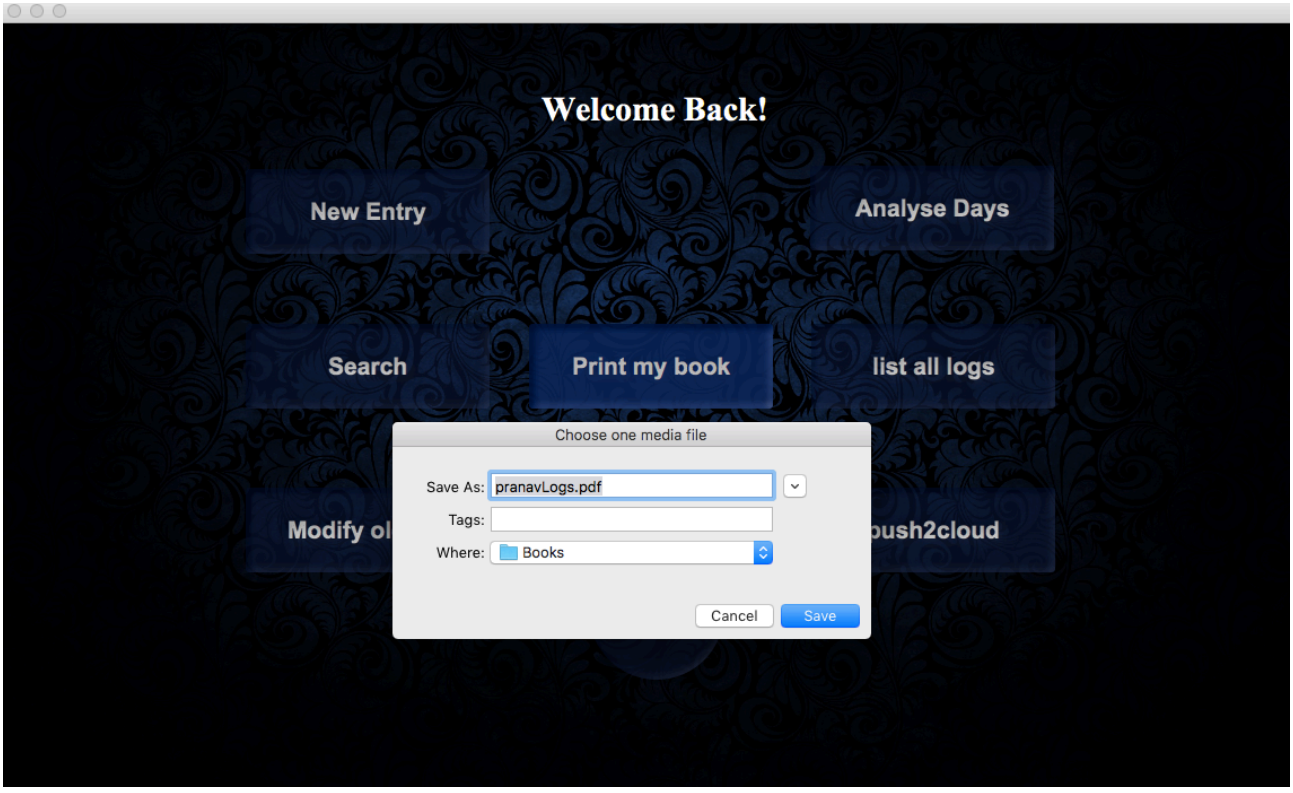
Search Engine

Note!T also provides searching functionality through all logs in database of particular user. It displays the highest priority result first.



Print PDF

Note!T provides option to print your diary in PDF format to read it without app. Travellers can enjoy reading their logs with this functionality. Cherish old memories!



7. Test Case Execution and Result

The aim of the testing process is to identify all defects existing in a software product. However for most practical systems, even after satisfactorily carrying out the testing phase, it is not possible to guarantee that the software is error free. This is because of the fact that the input data domain of most software products is very large. It is not practical to test the software exhaustively with respect to each value that the input data may assume.

7.1 White Box Testing:

One white-box testing strategy is said to be stronger than another strategy, if all types of errors detected by the first testing strategy is also detected by the second testing strategy, and the second testing strategy additionally detects some more types of errors. When two testing strategies detect errors that are different at least with respect to some types of errors, then they are called complementary.

1. Statement coverage
2. Branch coverage
3. Condition coverage
4. Path coverage
    - Control Flow Graph (CFG)
    - Path
    - Linearly independent path
5. Cyclomatic Complexity
6. Data flow-based testing

7.2 Black Box Testing

In the black-box testing, test cases are designed from an examination of the input/output values only and no knowledge of design, or code is required. The following are the two main approaches to designing black box test cases.

1. Equivalence class portioning
2. Boundary value analysis

Equivalence class partitioning :

In this approach, the domain of input values to a program is partitioned into a set of equivalence classes. This partitioning is done such that the behavior of the program is similar for every input data belonging to the same equivalence class. The main idea behind defining the equivalence classes is that testing the code with any one value belonging to an equivalence class is as good as testing the software with any other value belonging to that equivalence class.

Boundary value analysis :

A type of programming error frequently occurs at the boundaries of different equivalence classes of inputs. The reason behind such errors might purely be due to psychological factors. Programmers often fail to see the special processing required by the input values that lie at the boundary of the different equivalence classes. For example, programmers may improperly use < instead of <=, or conversely <= for <.

Mutation testing :

A type of testing where the constraints are satisfied by mutating the system in order to test certain functionalities that needs these constraints satisfied. Mutation testing helps to execute tests on modules that would come very late in the normal workflow by bypassing(taking shortcut)
Ex: setting flag to yes directly through database and testing the account withdrawal functionality(We did not login, but bypassed the login module). Hence the name Mutation Testing.

7.3 Testing Strategies :

7.3.1 Manual Testing :

Manual Testing is a process of finding out the defects or bugs in a software program. In this method the tester plays an important role of end user and verifies that all the features of the application are working correctly. The tester **manually** executes **test** cases without using any automation tools.

Table is given below

Test ID	Test Case	Steps	Expected Result	Actual Result	Final Status
1	Searching logs	1.click on search button 2.Enter query in input bar 3.Click on search button in that window	Relevant logs with title and date should be displayed according to their priority.	Relevant logs with title and date gets displayed. Highest priority to the first result.	**PASS**
2	Analysis on logs	1.Click on analyse days button 2.Select 1st date (from) on first date picker and select 2nd date(to) on 2nd date picker 3.Click on draw graph button	Analysis module should calculate sentiment on all logs and percentage share of each one . Calculated values should be displayed in PieCharts and LineCharts.Count of sad happy and moderate logs and missing logs should be displayed.	Correct pieChart and lineCharts are drawn. Count of sad happy and moderate logs and missing logs gets displayed.	**PASS**
3	Modify Entry in database	1.Click on modify logs button 2.Select date of which user wants to modify log of 3.Change the logs and media entries on the fetched logs. 4.Click on submit.	Modified entry should get reflected in database without creating a new entry.	Database gets updated with modified content.	**PASS**
4	New Entry in Database	1. click on new entry button 2. enter title and your data 3. upload media if you want. 4. Rate your experience. 5. Click on submit to save the record.	module should fetch the entered data and store in database .	Record is saved successfully in database.	**PASS**
5	Video Preview	1.click on either new entry or modify old log 2.click on video preview button	should fetch video path from database and play the video.	video of corresponding record is played successfully.	**PASS**
6	Image Preview	1.click on either new entry or modify old log 2.click on image preview button	should fetch imagepath from database and display the image.	image is displayed for corresponding record.	**PASS**
7	PDF generation	1.Click on Print my book button 2. select location where to save the generated pdf	fetch all records of user and pdf should be generated in specified format	pdf is generated with essential format.	**PASS**

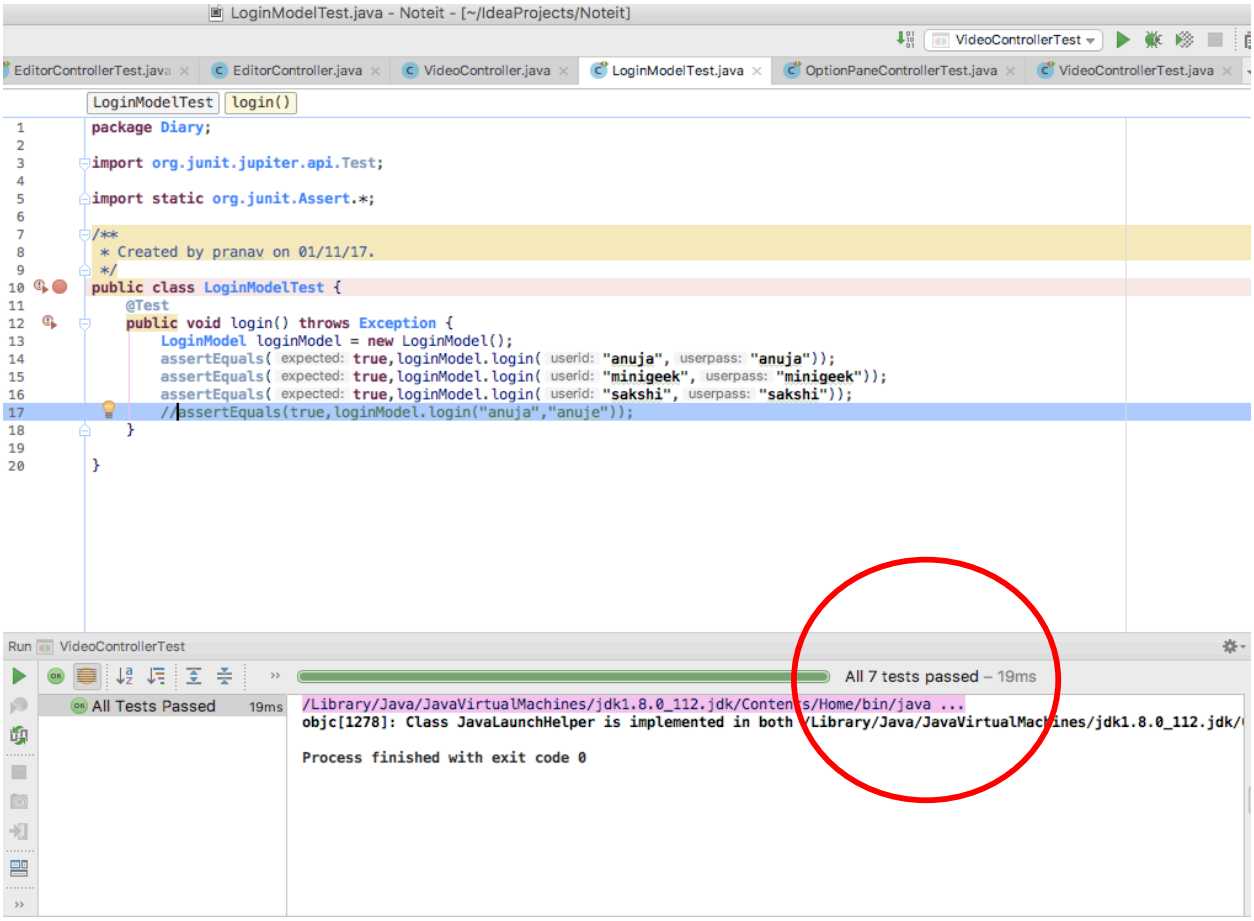
8	SignUp forum	1.Click on Sign up button 2.enter personal details. 3.enter account details	user credentials with user personal information should be added to database.	user credentials added successfully into the database.	**PASS**
9	Login page	1.Enter username 2.Enter password 3.click on signin button	Authenticate user and open dashboard	auathenticated user signin successfully, dashboard displayed.	**PASS**
10	Push to cloud	1.click on push_to_cloud button 2.click on I will wait button	module should push all the records of user in txt file format to cloud and show success message	all the records of users are uploaded cloud in txt file format and success message displayed.	**PASS**
11	Select particular log from all logs	1.click on list_all_logs button. 2.select log to view or modify.	module should display all the logs of user with corresopnding date and title . Record should be fetched after selecting a log.	all the logs of the user are displayed. Particular record id fetched as per user's selection.	**PASS**
12	Logout	1.click on logout button	user should logout and display login page .	user loged out successfully and login page displayed	**PASS**
13	Slider Visual Color display	1.slide the slider to rate the experience on 0 to 10 scale.	according to rate of experience it should display the corresponding color on visual color display.	Displayed corresponding color for rate of experience successfully.	**PASS**

7.3.2 Automation Testing :

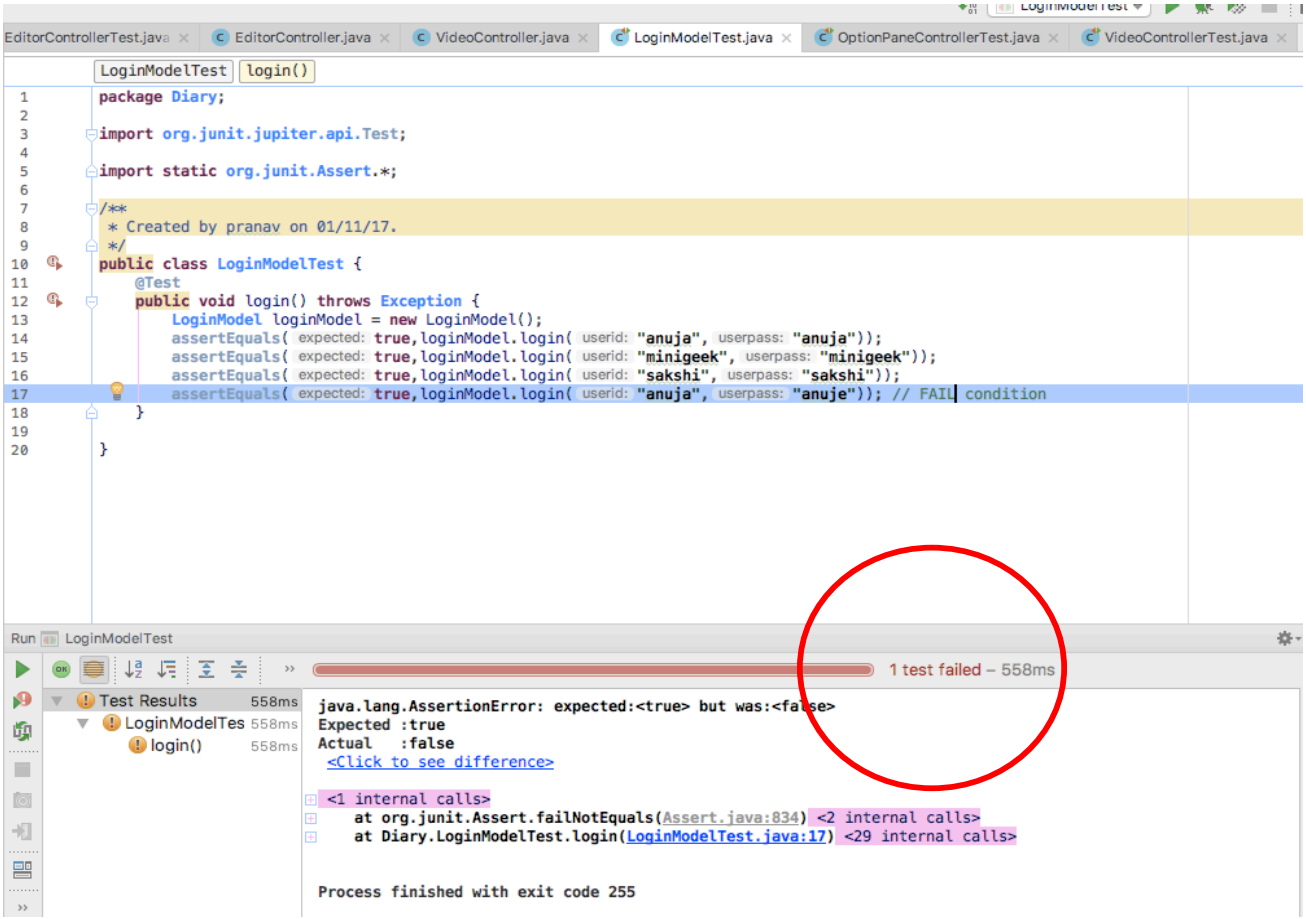
Automation Testing means using an automation tool to execute your test case suite. The automation software can also enter test data into the System Under Test compare expected and actual results and generate detailed test reports. Test Automation demands considerable investments of money and resources. Successive development cycles will require execution of same test suite repeatedly. Using a test automation tool it's possible to record this test suite and re-play it as required. Once the test suite is automated, no human intervention is required. This improved ROI of Test Automation. Goal of Automation is to reduce number of test cases to be run manually and not eliminate manual testing all together.

We used **junit** testing as our automation suite. It checks the internal functions of code by passing variables to methods in original classes and checking ***assertEqual*** statement. If returned result and expected result matches then test case is passed. There are several tests classes created for our application testing.

Junit4 Testing



Fail Situation



8. Conclusion

The project (Note!T - Analytical Journal desktop application) was designed and built using the incremental model of software development.
Three increments of the project were made. Each increment built and improved on the previous increments. The first increment had basic functionalities of writing, modifying and viewing logs. In the second increment, the analysis module was perfected and integrated into the first increment. Lastly, in the third increment, the cloud feature was assimilated into the application, search and print functionality was added to application.

The project helped in getting a hands-on experience of using platforms like IntelliJ IDEA and Gluon Scene Builder and strengthened concepts of Java, JavaFX, SQLite, Various Libraries, Information Retrieval, SDLC concepts.
It assisted in learning about cloud services as the Drive API of Google App Engine was used.

9. Future Scope

Currently, only the text entries are being cumulatively pushed to the cloud. This can be im- proved by making the pushes real-time and non-cumulative which has significant impact on saving time and data.
Apart from text entries, media uploads can also be pushed to the cloud. Google Drive limi- tations can be taken care of by using other cloud service providers like Amazon Web Services or Windows Azure.
This is small demo of sentimental analysis in our regular life.

10. References

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2]Existing Journal Applications:
www.diarioapp.com
www.2appstudio.com/journey/