

PDF Creator and Editor

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I. INTRODUCTION

Portable Document Format (PDF), standardized as **ISO 32000**, is a file format developed by Adobe in 1992 to present documents, including text formatting and images, in a manner independent of application software, hardware, and operating systems.^{[2][3]} Based on the PostScript language, each PDF file encapsulates a complete description of a fixed-layout flat document, including the text, fonts, vector graphics, raster images and other information needed to display it. PDF has its roots in "The Camelot Project" initiated by Adobe co-founder John Warnock in 1991.^[4]

PDF was standardized as ISO 32000 in 2008.^[5] The last edition as ISO 32000-2:2020 was published in December 2020.

PDF files may contain a variety of content besides flat text and graphics including logical structuring elements, interactive elements such as annotations and form-fields, layers, rich media (including video content), three-dimensional objects using U3D or PRC, and various other data formats. The PDF specification also provides for encryption and digital signatures, file attachments, and metadata to enable workflows requiring these features.

A PDF file is often a combination of vector graphics, text, and bitmap graphics. The basic types of content in a PDF are:

- Text stored as content streams (i.e., not encoded in plain text);
- Vector graphics for illustrations and designs that consist of shapes and lines;
- Raster graphics for photographs and other types of images
- Multimedia objects in the document.

In later PDF revisions, a PDF document can also support links (inside document or web page), forms, JavaScript (initially available as a plugin for Acrobat 3.0), or any other types of embedded contents that can be handled using plug-ins.

PDF combines three technologies:

- A subset of the PostScript page description programming language, for generating the layout and graphics.
- A font-embedding/replacement system to allow fonts to travel with the documents.
- A structured storage system to bundle these elements and any associated content into a single file, with data compression where appropriate.

II. PROBLEM DEFINITION

The main purpose of this application is to create a PDF at an instance without use of any desktop office packages. Here we can create a document or pdf through an android based mobile phone at any where with the use of this application. The project delivers an android studio based on real-time PDF Editor Application with multiple functionalities such as login and signup features, inserting PDFs, editing PDFs with multiple functionalities and much more.

2.1 Project Objective

Pdf Editor and Viewer aims to fulfill the following objectives: -

1. Registration for first time users using email and a master password.
2. Authenticating with firebase by sending user an email containing a link to verify their email address.
3. Once the email is verified, one can login into the app using the same email and master password.

4. Once user login they can use the features of pdf creator.
5. It has an option like pdf viewer and creator.
6. In viewer user can view his pdf file from storage.
7. In editor user has feature like add annotation, rotate pdf, add text., and another basic feature
8. Signout feature

2.2 Proposed Methodology

An online system with good graphical interface will solve the requirements as it will provide a systematic manner of managing the reporting system. This application can connect with database for record keeping and accessing as per needs.

Iterative process starts with a simple implementation of a subset of the software requirements and iteratively enhances the evolving versions until the full system is implemented. At each iteration, design modifications are made and new functional capabilities are added. The basic idea behind this method is to develop a system through repeated cycles and in smaller portions at a time (incremental).

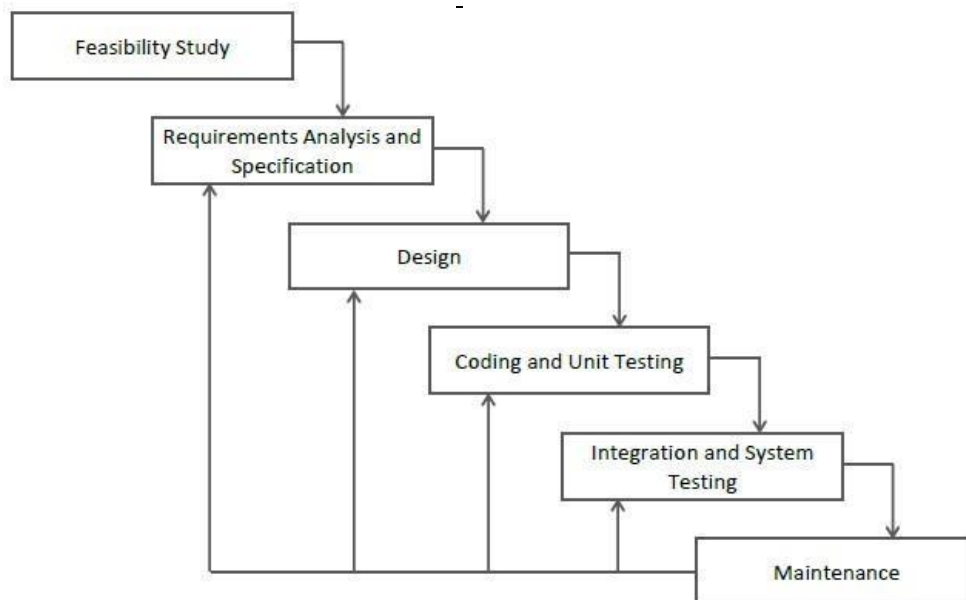


Fig.1 Iterative Waterfall Model

2.3 Phases of Iterative Waterfall Model

2.3.1. Feasibility Study:

The main goal of this phase is to determine whether it would be financially and technically feasible to develop the system. The feasibility study involves understanding the problem and then determines the various possible strategies to solve the problem. These different identified solutions are analyzed based on their benefits and drawbacks.

The best solution is chosen and all the other phases are carried out as per this solution strategy.

2.3.2. Requirement Phase:

The aim of the requirement analysis and specification phase is to understand the exact requirements of the customer and document them properly. This phase consists of two different activities.

Requirement gathering and analysis: Firstly, all the requirements regarding the system are gathered from the customer and then the gathered requirements are analyzed. The goal of the analysis is to remove incompleteness (an incomplete requirement is one in which some parts of the actual requirements have been omitted) and inconsistencies (inconsistent requirement is one in which some part of the requirement contradicts with some other part).

Requirement specification: These analyzed requirements are documented in a software requirement specification (SRS) document. SRS document serves as a contract between development team and customers. Any future dispute between the customers and the developers can be settled by examining the SRS document.

2.3.3. DesignPhase:

The aim of the design phase is to transform the requirements specified in the SRS document into a structure that is suitable for implementation in some programming language.

2.3.4. Coding and unit testing:

In coding phase software design is translated into source code using any suitable programming language. Thus, each designed module is coded. The aim of the unit testing phase is to check whether each module is working properly or not.

2.3.5. Integration and System Testing:

Integration of different modules is undertaken soon after they have been coded and unit tested. Integration of various modules is carried out incrementally over a number of steps. During each integration step, previously planned modules are added to the partially integrated system and the resultant system is tested.

Finally, after all the modules have been successfully integrated and tested, the full working system is obtained and system testing is carried out on this.

2.3.6. Maintenance:

Maintenance is the most important phase of a software life cycle. The effort spent on maintenance is the 60% of the total effort spent to develop full project. There are basically three types of maintenance:

- **Corrective Maintenance:** This type of maintenance is carried out to correct errors that were not discovered during the product development phase.
- **Perfective Maintenance:** This type of maintenance is carried out to enhance the functionalities of the system based on the customer's request.

PDF CREATOR AND VIEWER

PDF Creator and Viewer is an android app made using Java that can edit pdf and view pdf and app has login and registration feature of the application. The app uses firebase which is a platform developed by Google for creating and improving applications for both mobile and web. Firebase, a backend-as-a-service (BaaS), manages servers and provides a real time database that can be modified to suit the app's objectives. Email and password authentication, real time database, ready-made API, built in security and file storage supported by Google Cloud Storage are some features of firebase.

The aim is to develop Android application on PDF CREATOR & VIEWER. "PDF CREATOR AND

VIEWER" provides an environment to create PDF documents with key features of viewing and editing. This application helps to view and edit the documents in an easy manner. In the same editor, PDF can be developed. Firebase authentication enables user registration using email and password without any overhead of developing backend for the feature. The app needs to identify its users uniquely and after doing this successfully with the help of authentication process, it saves the user data safely in the cloud. A new user is prompted to register with their email and use pdf edit and view. User functionality is also provided using firebase.

The characteristics of a PDF file

PDF is a reliable and cross-platform file format. If information is passed on via a PDF, this can be done anywhere in the world without having to worry about it. Whether or not the recipient uses the same software and hardware, it is safe to assume that they will be able to open and view all types of PDF.

The PDF format is perfect for the exchange of confidential information. Security features, such as password protection (40 or 128-bit encryption), prevent unauthorized persons from opening, copying, amending or printing PDF documents which were not intended for them. However, it is important to point out that these restrictions can be bypassed with the aid of various tools. There are always ways and means which you should be aware of when creating PDFs.

PDF documents look exactly the same as the source file. All information of the original is preserved, even if different types of content such as text, illustrations, video, audio, 3D cards, color graphics and photos or logical functions are put together to form a single PDF file or PDF portfolio.

REQUIREMENT ANALYSIS DEVELOPMENT

Hardware Platform:

1. 2nd generation Intel Core or newer
2. RAM-4 GB or above
3. Minimum 2GB of free disk space

Software Platform:

Android Studio

Operating System:

Windows 7 or above (32 or 64-bit)

USERS

Operating System:

Minimum Android KitKat (Version 4.4; Android SDK 19)

III. MODULE DESCRIPTION

3.1 Register and Login Activity

When the app is installed and opened for the very first time, it goes to the login activity. New users can tap on the register now button to register themselves with their email and a master password. Now, if the user enters an email which is already registered then the app shows an error displaying that the email is already registered in the database. The master password must be at least 6 characters long. If the new master password being created by the user is less than the specified length then an error is displayed to the user. Also, the password and the re-type password fields should be same otherwise it leads to an error.

3.2 PDF CREATOR ACTIVITY AND VIEWER ACTIVITY

After logging into the account, the user can create pdf and add images, annotation, rotate images, merge image into single pdf and so on. With the Create feature, you can create PDFs from documents containing important or private information, and use its security features to keep your files safe as well as control access to them. By choosing to use a PDF document, you are assured that your file will always look the same and will be compatible with any PDF software no matter what system or software it was created with.

3.3 Bottom navigation for PDF Creator and Viewer

To create a highlight, tap the center of your screen to bring up the **Action Bar**. Tap the **Annotation Toolbar**, then the **Highlighter** icon. Drag the marker with your finger to the end of a sentence or paragraph to highlight the text. To change the color of the highlight, tap and hold the text to bring the popup menu. Tap **Style** to change the color, opacity or even annotation type.

If you wish to add a note, tap the selected text, then tap **Comment Note** to add a comment. PDF Creator and Viewer supports many annotation tools including strikeout, underline, link, text, and more. You might also want to enable some options in the **Settings** screen.

Tap the **Hamburger** menu and toggle the **Continuous Annotation Edit** switch. The annotation toolbar will no longer swap with the hand tool, letting you focus on annotating the book. Also, toggle the **Copy Annotated Text to Note** switch. While adding a note, the selected text gets automatically copied into the annotation's note.

UMLDIAGRAMS

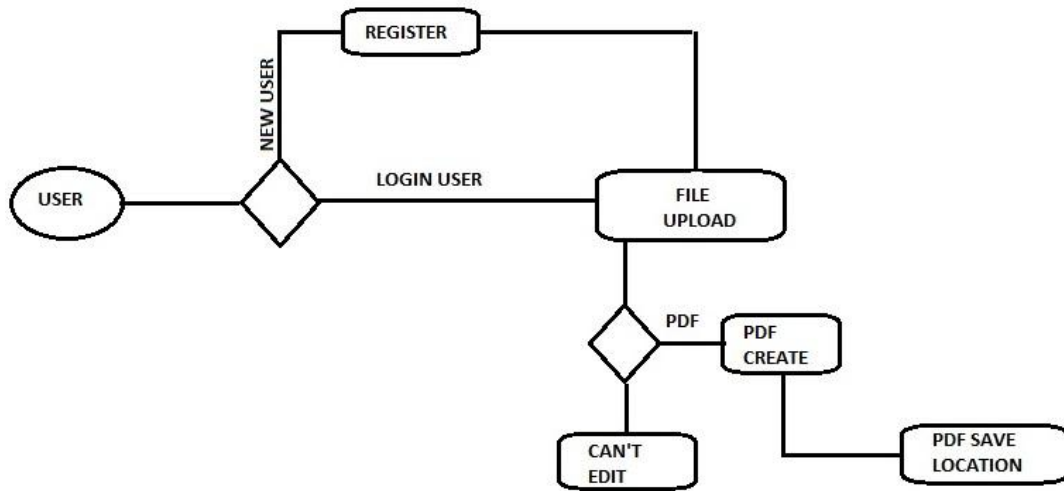


Fig2.DFDLevel-0

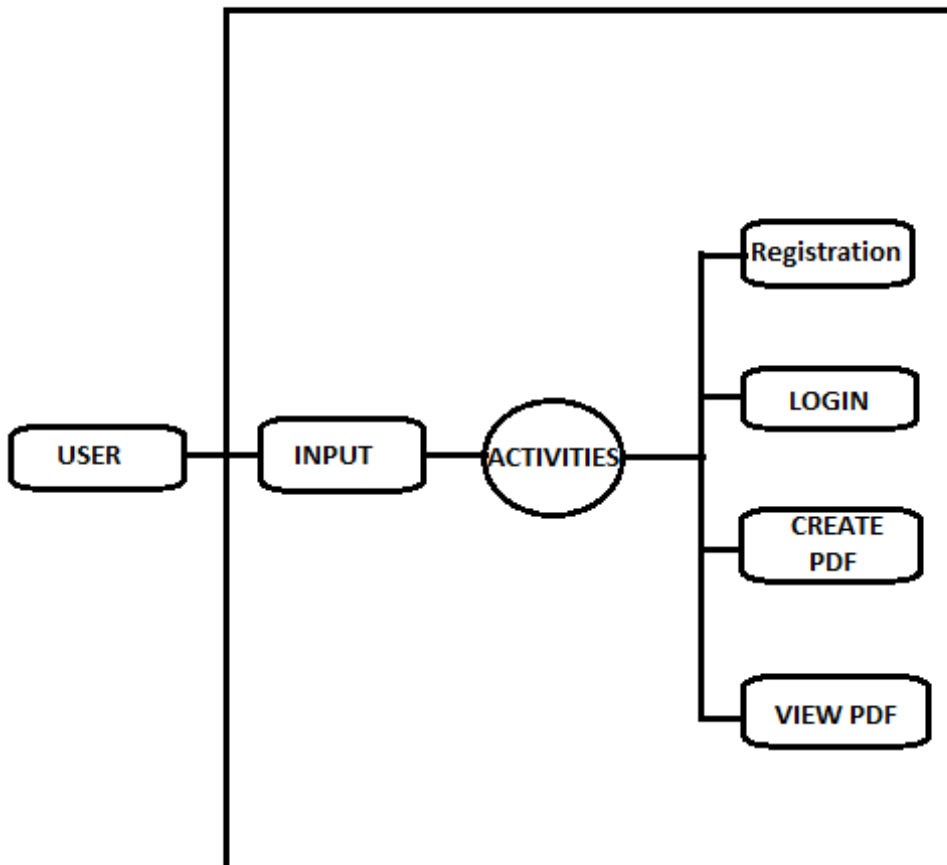


Fig4.UserCaseDiagram

IV. APPLICATIONS, ADVANTAGES AND LIMITATIONS

4.1 Applications

Create PDF files on your device, offline, no internet connection or server uploads required.

- Write rich text, or copy and paste text from anywhere and paste it into the app.
- Scan text straight into your document.
- Select between different fonts, text color, style and size.
- Change the document margin as needed.
- Add images, position, resize and rotate them.
- Create and add signatures.
- Add pages as needed, change page number style and page color.
- Save your work and continue later. All documents are saved and can be edited and used to create new PDF files at a later stage.
- Open, share, print or delete the PDF files from the app.
- Share and send images and text from other applications to PDF Creator to add it to the current or a new document.
- Convert images to PDF documents

4.2 Advantages

4.2.1 **Secure.** If you need your files to be private - PDFs, have you covered with their high levels of security. They are one of the most trusted document formats, as they're even used by legal professionals, and are recognized in court.

4.2.2 **Consistent.** Another advantage is that PDFs allow for the same layout and content to be displayed across all devices. These types of files can be easily accessed from anywhere and by anyone, making them relatively user-friendly.

4.2.3 **Compressed.** The final benefit of the PDF is that this type of format is compressed and, typically smaller than other file formats. This is a great feature if you're struggling for space on your hard drive!

4.2.4 No cost charges for using the application.

4.3 Limitations

4.3.1 User can edit only pdf files other document type such as doc files, word file, ppt files can not edited.

4.3.2 The app will not work for target operating systems below Android KitKat (Version 4.4; SDK 19) which is considered to be the minimum SDK for major releases of applications.

REFERENCES

- [1]. https://en.wikipedia.org/wiki/List_of_PDF_software
- [2]. <https://blog.paperturn.com/blog/advantages-and-disadvantages-of-pdfs>
- [3]. Android Studio documentation for app developers - <https://developer.android.com/docs>
- [4]. Firebase Documentation - <https://firebase.google.com/docs>

APPENDIX

In this paper, the following terms have been used:

- 1) **SDK**-Software Development Kit
- 2) **OS**-Operating System
- 3) **Data Breach**- It is a security violation that leads to stealing of sensitive information from a system or account without the knowledge of the legitimate owner.
- 4) **Activity**- A window in an android app with a user interface. An application can have one or more activities.
- 5) **Fragment**- A part of an activity or commonly known as sub-activity. Fragments have their own layout and own lifecycle callbacks.