Linux Based Global File Reader

[1]Shraddha Manjappa [2]Pooja Rane [3]Pratiksha Tamhane [4] Rupali Chikane [5] Mrs. Parimita Das

[1] B.E., Student [2] Professor

[1][2][3][4][5] Department of Information Technology

Fr. C. Rodrigues Institute of Technology, Vashi

[1] gkshraddha@gmail.com [2] 25.94pooja@gmail.com [3] cool.pratiksha95@gmail.com
[4] muktachikane@gmail.com [5] parimitads@gmail.com

Abstract: **Application development has evolved bringing a significant change in the field of software programming. Each and every software application has its own unique characteristic feature and purpose. Thus, the aim of the project is to develop an application that will incorporate the features and functionalities of various applications. The Linux based Global File Reader is a desktop application that can open files of different extensions in single software. The main objective of this project is to view the most commonly used file formats like text, document, image, audio, video, power point presentation, excel, html file and pdf. In the existing scenario, we need to download separate software to work with each distinct file type. This utilizes a lot of storage space and resources which sometimes affects the processing performance. Also, cross-platform compatibility issues of file viewing are faced when we work on different operating systems. Therefore, we intend to develop the project in GNU/Linux operating system and make it run on both Windows and Linux platform. The Linux based Global File Reader will overcome the need of multiple software applications since their functionalities will be integrated in one application and provide platform independence.**

Keywords: **Common IO package, Java Swing, Linux, Multithreading.**

I. INTRODUCTION

File reader is the basic need for displaying the data stored in a computer in a user-friendly form. The contents of the file are presented on the screen using file readers. Presently, multiple file formats exist and each has its own specific feature. Thus, to support each file type, different software is required. In order to address this issue, we propose to develop a special

A. Linux Based Global File Reader

Linux Based Global File Reader is a free desktop application that can view multiple file formats. Thus, the goal of the project is to replace numerous file viewers with single application. It is a compact viewer that supports file formats like text file (.txt), document(.doc, .docx, .pdf), image (.gif, .png, .jpg, .tiff, .bmp), audio files (.mp3), video (.mp4) and code files. (.java, .c). Linux platform is chosen for the development of the software so that it can be open source. Thus, it becomes free software for the users. This desktop application has a simple interface with a tool bar at the top for basic operations. It includes a tabbed feature that can open many files simultaneously. This project is proposed for private, non-commercial and educational use.

1. Linux Platform

GNU/Linux is an open source operating system. Thus, all the packages are easily available which makes the software free to use. We aim to create software in Linux that will resolve the issue of platform dependence for the

Users. Thus, using the proposed system, user can open their files irrespective of the Windows or Linux platform. Most of the file readers have cross compatibility issues which will not be faced in the proposed system as it is developed in Linux.

2. Advanced Java

Java is an open source programming language. It requires Java Virtual Machine (JVM) to run java applications. Thus, the project will be able to run on the systems that have JVM. Therefore, it makes the proposed system platform independent. Java Swing API is used to create GUI components. Swing also provides tabbed panel functionality [1] [2]. Advanced features like Jpanel, Jframes, iframes and multithreading (to load GUI components) are provided by Java Swing [3]. Document files are read using poi packages [4]. File handling of various extensions is done by common IO (input/output) package [5].

3. Motivation

In the current scenario, different applications are to be downloaded and installed for various file types. This becomes hectic and cumbersome as it utilizes many computer resources like hard disk space, CPU utilization, etc. Moreover, if the user buys a licensed version of the software, then there is cost involved with it. If the user opens many files at the same time, the taskbar becomes crowded with many windows opened in it. The existing software is developed for a specific platform. Thus, the issue of

cross compatibility is faced. Therefore, these issues will be addressed by Linux Based Global File Reader.

II. PROPOSED SYSTEM

A. Problem Statement

At present, to view different documents, a user has to install different application corresponding to a particular file type. For example, if a user wants to view a word document then there should be MS Office installed on the user's computer. In addition, to view PDF file, there must be Adobe PDF Reader installed. For images, we need Image Viewer and similarly for audio and video, we require a media player.

Thus, it is not user-friendly that single software can perform only one task. In addition, if a user is subscribed to a licensed version of the software, then there is also cost involved in it. Also, if a user had many files opened related to different applications then the taskbar would be filled up with many windows open in it.

These issues are summarized as:
❖ Installing different applications.
❖ More hard disk space utilization.
❖ Cost for purchasing licensed applications.
❖ Many windows opened in the taskbar.

B. Scope

The Linux Based Global File Reader is more of a viewer than an editor. It supports basic editing operations. Even though our main focus is Linux, the application is capable of running on even Windows platform since it is been written in Java. It supports file formats like text file (.txt), document (.doc, .docx, .pdf), image (.gif, .png, .jpg, .tiff, .bmp), audio files (.mp3), video (.mp4) and code files (.java, .c).

Features and advantages
❖ No special installation for different application.
❖ Less hard disk space utilization.
❖ Free of cost.
❖ Supports tabbed feature - multiple files can be opened simultaneously.

C. System Requirements

Software Requirements
❖ GNU/Linux or Windows Operating System(for checking platform independence).
❖ Java 1.7 with JDK and JVM.
❖ Eclipse Mars IDE.

Hardware Requirements

No specialized hardware components required since it is a complete software project.
❖ Computer or laptop.
❖ Hard disk: 20 GB.
❖ RAM: 512 MB.
❖ Speaker (in case of desktop computers).

III. DESIGN

A. Architectural Design

The architectural design shows the basic modules of the system and their connectivity. The user will open a file using the Global File Reader application. The selected file, through the GUI will be sent to the file processing engine where the file will be processed. It will check whether the file format exists or not. If it exists, then the file will be opened through the same GUI for the user.

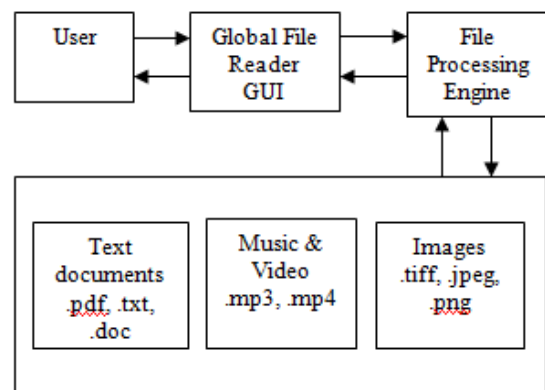The architecture of Linux based Global File Reader is as follows:

Figure 1 Architecture of Global File Reader

B. Global File Reader GUI

It is the user interface through which the user will interact with the system. Through this interface the user will open a file from a list of formats like pdf, word, mp3, mp4, .jpeg, .gif, etc. The file will be opened for viewing the output.

It has a simple interface with a toolbar for basic operations like open file, save, save as, close, etc. It supports tabbed feature so that user can view numerous files side by side. The operations corresponding to a particular file format will get embedded in the tab where it is to be viewed. For E.g.: The window of text documents

include new, open file, save, find and replace and clear and the image window has rotate, zoom in/out, etc. The GUI includes shortcut buttons for most frequently needed operations such as save, close, new, etc.

C. File Processing Engine

File Processing Engine is the main module in the system where the input files will be processed according to the formats supported. All the functionalities of each module are separately stored in the system.

The user will provide input through the GUI which is redirected to the File Processing Engine. The particular extension module is selected as per the user's selection by the switch case. The corresponding file format is searched and its functionality is executed. The final output is displayed on the GUI.

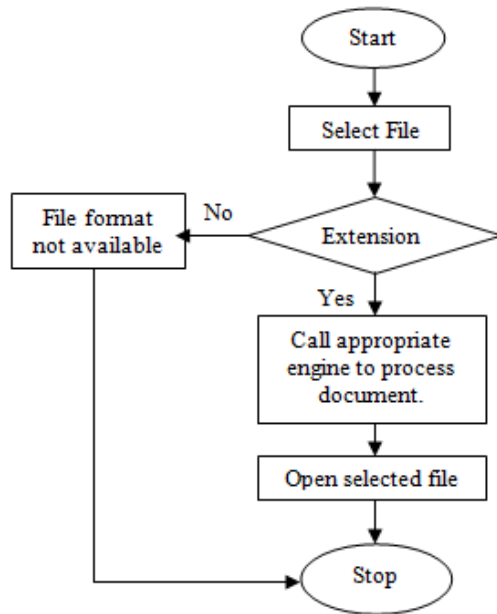### D. Flowchart of the Global File Reader

Figure 2 Flowchart of Global File Reader

Figure 2 represents the process of the system. The user selects to view a file. The system then checks for the file extension. If it is present then the appropriate engine corresponding to the file format is called and the selected file is opened. If the file extension is not present, then the process will stop.

IV. METHODOLOGY

The project is a pure java based application that uses Eclipse IDE as the platform for the development. A java program is created which contains a main method.

When the user runs the application, the User Interface constructor is called by the main method. All the GUI components are initialized that is memory is allocated to each component. The interface of Linux Based Global File Reader is displayed on the screen to the user. Through the user interface, the user will select a file format to be opened. Based on the user's selection, the input will go to the File Processing Engine. With the help of common IO package, it differentiates the various file extensions and the particular requested format will be processed [5]. A 'filepath' variable will open the selected file by accessing the path of the file where it is stored [6]. On the users file selection, the functionalities of that particular extension are executed. The final output is displayed on the GUI. Using multithreading, not only one but multiple processes can run at the same time [7].

V. CONCLUSION

File system plays an important role for users. Today, as we see there are number of applications that help to view those files. But the inefficient resource consumption that hampers the system performance is an adverse effect of downloading multiple applications. The proposed project thus aims to solve this problem by developing a single desktop application which integrates the features and functionalities of different file extensions. This consolidation will enable the users to open and view different files in single software. This will avoid the need to install various applications and unnecessarily increase the burden on the computer system to handle those applications.

FUTURE SCOPE

Extending the support for more file formats and making the software cloud based - so that there is no need to even download the application. Users can just log in and access their files anywhere.

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