MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE, GWALIOR

(A Govt. Aided UGC Autonomous & NAAC Accredited Institute Affiliated to RGPV, Bhopal)

Project Report

on

Image Editor App

Submitted By:

Kratik Sahni

0901CS191050

Nitish B Joshi

0901CS191070

Faculty Mentor:

Mr. Mahesh Parmar

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MADHAV INSTITUTE OF TECHNOLOGY & SCIENCE

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CERTIFICATE

This is certified that **Kratik Sahni** (0901CS191050) has submitted the project report titled Image Editor App under the mentorship of Mr. Mahesh Parmar, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

Mr. Mahesh Parmar
Faculty Mentor

Computer Science and Engineering

09/05/2022

Dr. Manish Dixit
Professor and Head,
Computer Science and Engineering

Dr. Manish Dixit
Professor & HOD
Department of CSE
M.I.T.S. Gwalior

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CERTIFICATE

This is certified that **Nitish B Joshi** (0901CS191070) has submitted the project report titled Image Editor App under the mentorship of Mr. Mahesh Parmar, in partial fulfilment of the requirement for the award of degree of Bachelor of Technology in Computer Science and Engineering from Madhav Institute of Technology and Science, Gwalior.

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DECLARATION

I hereby declare that the work being presented in this project report, for the partial fulfilment of requirement for the award of the degree of Bachelor of Technology in Computer Science and Engineering at Madhav Institute of Technology & Science, Gwalior is an authenticated and original record of my work under the mentorship of Mr. Mahesh Parmar i declare that I have not submitted the matter embodied in this report for the award of any degree or diploma anywhere else.

Nitish B Joshi
0901CS191070
3rd Year,
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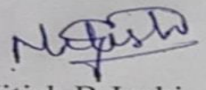
I would sincerely like to thank my department, **Department of Computer Science and Engineering, for allowing** me to explore this project. I humbly thank **Dr. Manish Dixit**, Professor and Head, Department of Computer Science and Engineering, for his continued support during the course of this engagement, which eased the process and formalities involved.

I am sincerely thankful to my faculty mentors. I am grateful to the guidance of **Mr. Mahesh Parmar**, for his continued support and guidance throughout the project. I am also very thankful to the faculty and staff of the department.



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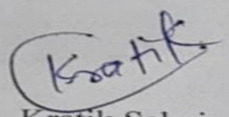

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ABSTRACT

In this project "**IMAGE EDITOR**" (a android based application) it aims at creating various effects for processing an image of any format such as .jpg, .gif etc. Our objective is to give a clear outlook about the various operations or effects that can give to an image to change its original look. We select this topic as our project by acquiring motivations from various existing software's such as Windows Picture Management likewise…We use android studio(java,XML) as a supporting software while commencing this project. The Bitmap function in java helps to grab each image into its pixel level.

Keywords: java, xml

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CHAPTER 1: INTRODUCTION

1. INTRODUCTION

System study is the first phase for the development of software when the preliminary investigation is made. The importance of system study phase is the establishment of the requirements for our system to acquire, developed and installed. The important outcome of the preliminary investigation is made in the study phase. System study is one of the important steps included in the system development life cycle. System study involves studying the ways by which we can process an image. A number of image editors are available for us, but they have high cost. By developing our own system we can done image processing at free of cost.

The life cycle of our system includes the following steps:

Reorganizations of need or Preliminary study/survey

- Feasibility study
- Analysis
- Design
- Development and testing
- Implementation
- Post implementation and Maintenance

Recognition of needs and preliminary investigation is the first system activity done by us. After that we find out how each effect take place in an image. We identify deferent functions and information's are collected. It is also essential that the analyst familiarize himself with the objectives, activities and functions of organizations in which the system is to be implemented.

1.1 FEASIBILITY STUDY

Many feasibility studies disillusioning for both users and analyst. First the study often presupposes that when the feasibility document is being prepared the analyst is in a position to evaluate solutions; second most studies tend to overlook the confusion inherent in system development. The three key considerations are involved in feasibility analysis are

- Economic feasibility
- Technical feasibility
- Behavioral feasibility

1.2 ECONOMIC FEASIBILITY

Economic feasibility is the most frequently used methods for evaluating the effectiveness of a candidate system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with cost. The result of comparison is found and changed if needed. If benefits outweigh costs then the decision is made to design and implement the system. Otherwise further justification or alternation in the proposed system will have to be made if it is to have a chance of being approved. As we are developing a completely new system the

cost is on the higher side. The implementation costs involve the installation of a new hardware and software as well as the cost of hosting the website on the internet. Maintenance of the system is much costly. Training for the operating personnel is also expected to be by the people who have never been initialized to operating a computerized system.

In this case, benefits outweigh costs computerization reduces the need for manual labour.This saves much money and also save many hours of manual labor resulting in financial savings. Saving on time is also a benefit of the new system. Thus concluding that the benefits of the system outweighed its cost culminated the economic feasibility study.

1.3 TECHNICAL FEASIBILITY

Technical feasibility centers on the existing system and to what extend it can support the proposed addition. Here we have many technologies existed which can give effects to an image .But our proposed system have almost all the operations together in one unit. We can choose any effect fastly and easily whenever we required, otherwise we have to select an effect, then add an effect to image, if we are not much impressed with we have to search for another one. In the proposed system there is no need to search for effects .All the effects are put together and select an image give effects, change to another one and so on easily. The main feature of the proposed system is that it is more users friendly.

1.4 BEHAVIORAL FEASIBILITY

It is also known as operational feasibility. People are inherently resistant to change and computers have been known to facilitate change. Now most people support computerized system. An estimate should be made of how strong a reaction the user staff is likely to have toward the development of a new system. Therefore it is understandable that the introduction of the new system required special effort to educate and train the staff on way of operating system. Also required to give awareness to the customers. The staffs were not against the system; however the user would accept the concept.

CHAPTER 2: INTRODUCTORY INVESTIGATION

2. INTRODUCTORY INVESTIGATION

Introductory Investigation is done prior to the system study phase. It is indented to give an insight into the requirements of the system based on the feasibility report obtained after feasibility study. After the feasibility study, we came across some factors which made the introduction of a new system inevitable. In globalized world good information system has become a need more than a status symbol for any organization, especially a public organization like ours.

2.1 SYSTEM STUDY

System study involves studying the ways the organization currently retrieves and processes to produce information with the goal of determining how to make it better. For this, we developed an alternative system and evaluated it in terms of cost, benefits and feasibility. We made a thorough study of all areas which we have to make better while developing the proposed system.

2.2 PROPOSED SYSTEM

The proposed system is designed to meet almost all effects/operations that can given to an image. Here our proposed system entitled "**IMAGE EDITING TECHNIQUES**". The main feature of this system is very user friendly and user can get a look to all effects easily, and can do all effects to a single image which is directed to display below the effects name mentioned in the menu page and cancel unnecessary effects easily by using cancel button below the image.

Advantages of proposed system

- Simple and more user friendly
- More interactive
- It avoids time delay
- Reliability
- Speed
- Accuracy
- High data security

2.3 CONCLUDING INVESTIGATION

After starting the shortcomings of the existing system and features of proposed system, a concluding investigation was done. It looks into consideration of old effects and new effects and selects some effects that give effects differently. The information received from the phase was used in the detailed design of the system.

CHAPTER 3: SOFTWARE REQUIREMENTS

3. SOFTWARE REQUIREMENTS

Operating System : Android 5 or above

Front End : XML

Back End : Java

FEATURES OF OPERATING SYSTEM

3.1 ANDROID

Android is an operating system based on Linux kernel, developed by Google. Linux is an Open Source and free operating system and with some modifications on the Linux operating system, android OS was developed. Linux OS is majorly used in server and Desktop operating system so the android operating system is focused on touch screen mobile devices like smartphones and tablets. The First Android version was Rolled out in the year 2003 by the owner of "Android Inc.", "Andy Rubin", but later on Google acquired Android Inc. for at least $50 million, and made Andy Rubin the head of Android. Android was officially launched by google in the year 2007 and then google announced as an open-source operating system. In the year 2008 HTC Dream was launched in the market as the first mobile phone which runs exclusively on the operating system. In the year 2003, "Andy Rubin" left Android for some personal project, and then "Sundar Pichai" was announced as the head of Android.

Key Features of the Android Operating System

- **User Interface:** The user interface of the Android operating system is straight forward, and these features make it very user friendly.
- **Multiple Language Support:** Android supports multiple languages in its operating system and one can change the language very easily based on one's requirement, the International languages supported are English, Germany, Chinese, Dutch, French, German, Japanese, Korean, Russian, and many more also some native language of India is also Supported Like Hindi, Marathi, Gujrati, Punjabi and many more.
- **Multi-tasking:** Android provides support to run apps and services in the background with ease which allows the users to use multiple apps at the same time.
- **Connectivity:** Android has extensive support to the connectivity and it supports connectivity such as WiFi, Bluetooth, Hotspot, CDMA, GSM, NFC, VOLTE, UBB, VPN, 3G network band, and 4G Network Band.
- **Extensive Application Support:** Android have Play store which is used as the major tool to download and update applications on the operating system, however, one can download the installer(often called as APK file) and install it manually, but it is not much recommended as third party applications could be prone to some security breach in the smartphones.

CHAPTER 4: LANGUAGE DESCRIPTION

4. LANGUAGE DESCRIPTION

4.1 JAVA

Java is the first and foremost an object-oriented programming language. Java is a programming language originally developed by James Gosling at Sun Microsystems (which is now a subsidiary of Oracle Corporation) and released in 1995 as a core component of Sun Microsystems' Java platform. The language derives much of its syntax from C and C++ but has a simpler object model and fewer low-level facilities. Java applications are typically compiled to byte code (class file) that can run on any Java Virtual Machine (JVM) regardless of computer architecture. Java is a general-purpose, concurrent, class-based, object-oriented language that is specifically designed to have as few implementation dependencies as possible. It is intended to let application developers "write once, run anywhere". Java is currently one of the most popular programming languages in use, and is widely used from application software to web applications. The original and reference implementation Java compilers, virtual machines, and class libraries were developed by Sun from 1995. As of May 2007, in compliance with the specifications of the Java Community Process, Sun relicensed most of its Java technologies under the GNU General Public License. Others have also developed alternative implementations of these Sun technologies, such as the GNU Compiler for Java, GNU Class path, and David Many programmers are surprised when they discover how easy it is to follow sound object-oriented design practices with Java. The following sections give you a better understanding of what Java offers.

Primary characteristics of Java:

The ease with which you can transition to Java from C or C++ and Java's object-oriented capabilities are not only the advantages, but also Java has some other features such as:

- Simple
- Object-oriented
- Platform-independent
- Robust
- Secure
- Distributed
- Dynamic
- Portable
- Multithreaded

These characteristics are the source of Java's power and the reason for Java's widespread popularity. As you begin to develop with Java, you will find that many of these characteristics are interrelated and are a direct outgrowth of Java's development for the following:

- Distributed network environments
- High performance
- Easy reuse of code
- security

Besides these advantages, there are various categories of programs that can be developed in Java such as:

- Applets

- Applications

Applets are Java programs that are created specially to work on the Internet. They run through a Java enabled browser such as Netscape or Internet Explorer. An applet can be created using any Java development tool. It must be contained or embedded within a webpage or an HTML file. When the webpage or an HTML file is displayed in a browser, the applet is loaded and executed. An Application is a program that runs on the computer in the operating system of the computer. Creating an application in Java is similar to doing so in any other computer language. The application can either be GUI based or based on command line interface.

One characteristic of Java is portability, which means that computer programs written in the Java language must run similarly on any supported hardware/operating-system platform. This is achieved by compiling the Java language code to an intermediate representation called Java byte code, instead of directly to platform-specific machine code. Java byte code instructions are analogous to machine code, but are intended to be interpreted by a virtual machine (VM) written specifically for the host hardware. End-users commonly use a Java Runtime Environment (JRE) installed on their own machine for standalone Java applications, or in a Web browser for Java applets. Standardized libraries provide a generic way to access host-specific features such as graphics, threading, and networking major benefit of using byte code is porting. However, the overhead of interpretation means that interpreted programs almost always run more slowly than programs compiled to native executables would. Just-in-Time compilers were introduced from an early stage that compiles byte codes to machine code during runtime.

4.2 XML

Extensible Markup Language (XML) is a markup language and file format for storing, transmitting, and reconstructing arbitrary data. It defines a set of rules for encoding documents in a format that is both human-readable and machine-readable. The World Wide Web Consortium's XML 1.0 Specification] of 1998 and several other related specifications all of them free open standards define XML.

The design goals of XML emphasize simplicity, generality, and usability across the Internet. It is a textual data format with strong support via Unicode for different human languages. Although the design of XML focuses on documents, the language is widely used for the representation of arbitrary data structures such as those used in web services.

Several schema systems exist to aid in the definition of XML-based languages, while programmers have developed many application programming interfaces (APIs) to aid the processing of XML data.

The main purpose of XML is serialization, i.e. storing, transmitting, and reconstructing arbitrary data. For two disparate systems to exchange information, they need to agree upon a file format. XML standardizes this process. XML is analogous to a lingua franca for representing information.

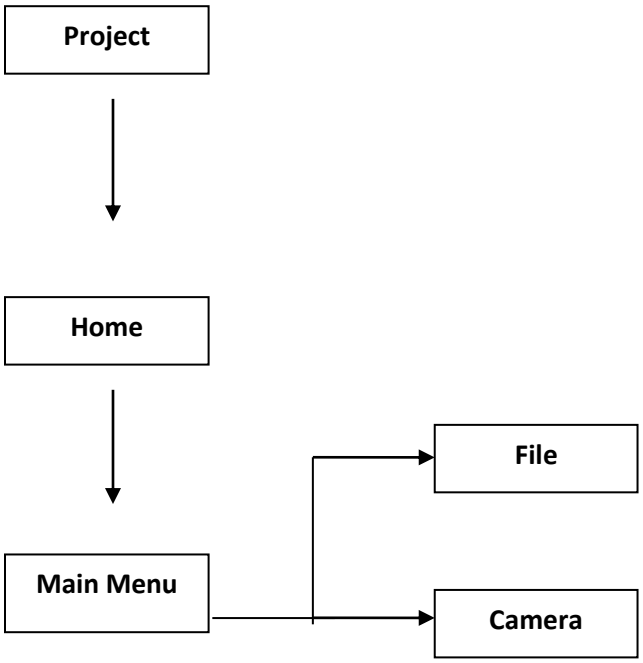
As a markup language, XML labels, categorizes, and structurally organizes information.XML tags represent the data structure and contain metadata. What's within the tags is data, encoded in the way the XML standard specifies.An additional XML schema (XSD) defines the necessary metadata for

interpreting and validating XML. (This is also referred to as the canonical schema.) An XML document that adheres to basic XML rules is "well-formed"; one that adheres to its schema is "valid."

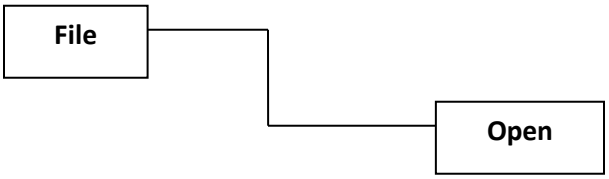
IETF RFC 7303 (which supersedes the older RFC 3023), provides rules for the construction of media types for use in XML message. It defines two base media types: application/xml and text/xml. They are used for transmitting raw XML files without exposing their internal semantics. RFC 7303 further recommends that XML-based languages be given media types ending in +xml, for example, image/svg+xml for SVG.

4.3 WORKING STRATEGY

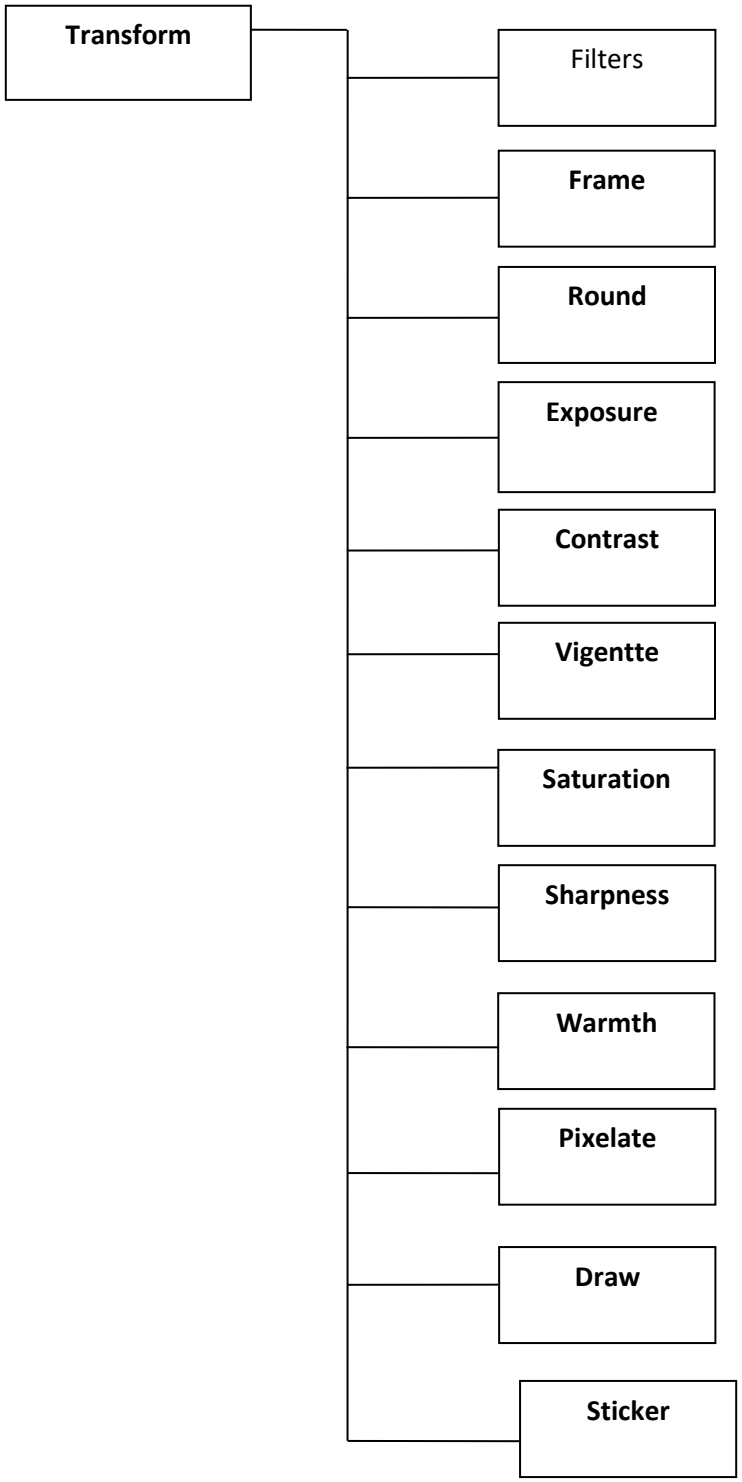
Menu Tree



File Menu



Transform Menu



CHAPTER 5: SYSTEM TESTING

5. SYSTEM TESTING

Testing is the stage of implementing which is aimed at earning system running accurately and efficiently. An error or anomaly in program code can remain undetected indefinitely. To prevents this from happening the code tested at each of the level. So the testing is performed to ensure that the system as a whole is bug free. For each stage or phase, a different technique for eliminating the errors that exists in each stage. However some requirement error and design errors are likely to remain undetected.Ultimately, these errors will be reflecting in the code. Testing is usually associated with the code and is used to detect the errors remaining from the earlier phase. The performance factors like turnaround time, back up, file protection and human factors are some of the performance criteria for the system testing .Hence testing perform a critical role for quality assurance and for ensuring the reliability of software

At first we used artificial data to store information. During testing the system is to be tested is executed with a set of image inputs and the output was verified. If the program fails to perform as expected then conditions under which a failure occurs are noted for debugging and correction. It only reveals the presence of errors clearly; the success of testing in revealing errors in a system depends critically on the test cases. Thus preparation of test cases plays a vital role in the system testing.

After preparing the test cases, the system was tested. While testing the system, errors were found and corrected. Test cases were generating based upon the requirements of the user. A series of test were performed before the system was ready for implementation. Testing will end or stop if no bugs are encountered, the system crashes or if the system enters an infinite loop

The basic levels of testing are:

- Unit testing
- Integration testing
- System testing
- Acceptance testing

5.1 Unit Testing

The first level of testing is unit testing. In this, the smallest units of software design, the module are tested against the specifications processed during the design for the modules are tested against the specification produced during the design for the modules .It consist of a number of tests runs such as valid path through the code, and the exception and the error handling paths. Unit testing is essentially for verification of the code produced during the coding phase and hence the goal is to test the internal logic of the modules. Unit testing involved checking all pages for errors and omissions. We used the unit testing plans prepared in the design phase of the system development as guide. The testing was carried out during the coding itself. Each module of this project was found to be working according to the expected output from the module.

5.2 Integration testing

Data can be lost across an interface, one module can have an adverse effect on the other sub functions, when combined may not produce the desired functions. Integrating testing is the systematic testing to uncover the errors within in the interface. This testing is done with simple data and the development system has run successfully this simple data. The need for integrated system is to find the overall system performance.

5.3 System testing

In this testing, the entire software system is tested. All the application programs are grouped together for the system testing, to test the whole system exhaustively including any additional housekeeping function like file achieving. This is the developers the last opportunity to check that the system works before asking the silent to accept it. The purpose of this testing is to verify that if the software meets its requirements. It verifies all elements much properly and overall system function performance is achieved. It is also tests to find discrepancies between the system and its original objective specification and system document. After this test, it was found that our project **"IMAGE PROCESSING TECHNIQUES"** works well as per the specified requirements.

5.4 Acceptance Testing

User Acceptance Testing of the system is the key factor for the success of any system. The system under considerations is tested for the user acceptance by constantly keeping in touch with perspective system at the time of development and making change whenever required. This is done with regard to the input screen design.

CHAPTER 6: MAINTENANCE

6. MAINTENANCE

Software maintenance is the process that contains various modification activities that occur following product release. The project is coded in any efficient manner. So it facilitates the easy understanding and thereby easy maintenance. Modification are made to enhance adapt and correct errors in software product. The maintenance of the system is a difficult task, which commands professional hands.

CHAPTER 7: CONCLUSION

7. CONCLUSION

In the ever shrinking world of Information Technology, our project is only a humble joint venture to satisfy a small part of the **Image Editing**. The system is highly flexible and can be modified to use in any photo studios & all of us .We have tried to make the system user friendly. Security is one main consideration in the project. The system is protected from any unauthorized access. We hope the entire objection to the system is rectified and the users will accept the system. There is no claim of this product being perfect, or anything near that. This is only a humble attempt made under trying circumstances. This system has been designed in an attractive manner. So that, even a user with minimum knowledge can operates the system easily

The software is developed with scalability in mind. Additional modules can easily add when necessary. The software is developed with the modular approach. All modules in this system have been tested separately and put together to form the main system. Finally the system is tested with the real data and everything worked successfully. Thus the system has fulfilled all the objectives.

CHAPTER 8: LANGUAGE DESCRIPTION

8. References

“Head First Android Development”, “David Griffith”

“Android Programming for Beginners”, “John Horton”