

PROJECT REPORT***PANTOMATH: Parental application***

*Submitted in partial fulfilment of the requirement for the award of the degree
of*

BSc. Cyber Forensic

Done by

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Under the guidance of

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Certificate

*This is to certify that the project entitled “PANTOMATH: Parental application” is a Bona fide work done by **ARSHA MARY ISSAC** submitted in the partial fulfilment of the requirement of the degree of BSc. Cyber Forensic of school of Technology and Applied Sciences Edappally.*

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ACKNOWLEDGEMENT

A project work done is a product of experience that a person needs to build up in respective profession. That is not of his merit but a group of heart is behind the success. If words are considered as the symbol of approval and tokens of acknowledge them the words play the heralding role of expression my gratitude.

First of all, I thank the **ALMIGHTY** for showering his grace and blessing upon me to carry throughout, from the very beginning when I took up the work till very submission of work.

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ARSHA MARY ISSAC

DECLARATION

We, hereby declare that the project report “**PANTOMATH: Parental application**” is submitted in partial fulfilment of the requirements for the sixth semester of Bachelor of Science and it is a report of the original work done by me in the Department of Cyber Forensic of MG University School of Technology and Applied Sciences, Edappally.

Place: Edappally

Date:

ARSHA MARY ISSAC

ABSTRACT

Pantomath is a complete solution for ensuring the safety of kids. Now a day the crimes against children are widely increasing. While a crime happens against the child we didn't have any option to find the current location of our child. This system provides the facility to find the location of child simply with the help of an android mobile. This system will provide exact address of current location with great accuracy. Now a day many crimes are there against children. Each parent can monitor the movements of their children by using this android application. In this paper, I use GPS system to trace the location of the child. There are mainly two modules and a database is there for my system. One is parent module which can be an android mobile phone with the application in it. The child module can be either an android mobile, android watch or Android navigators. The database is used to monitor the location of the child. Which can be connected to the school for monitoring the movements of children with in the school its self. The call list from the child phone, the message list from the child, the list of installed applications are also can be fetched by the parent. Also parent can add the reminder for the child.

Using electronic devices is not limited to adults or to specific time or place, Children use different types of mobile devices with no constraints. Guardians concern about the effect of the technical explosion on their children development. Controlling, monitoring and managing approaches are in need to help in overcoming some of these worries. This project gives insight in approaches to monitor and control children electronic devices. The project includes an overview of the related research efforts that allow guardians to manage and monitor data, applications, or services available in kid's mobile devices. The main challenge is to balance privacy and flexibility with the ease of use. The project also includes the implementation of an android application called PANTOMATH: Parental application.

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INTRODUCTION

1. INTRODUCTION

On the digital century where technology reaches kids hands, guardians may worry about the effect of this very open world on their kids' development. They may worry about the detrimental effect of this technology on their educational, emotional and social developments. To help overcome some of these worries, guardians may need to have some controlling technology to check and track their children usage for the personal devices. As tablet devices are one of the most used technologies by children on our society, guardians will need to have some automated technologies to observe and supervise the time and quality of their children's usage for these tablets.

Monitoring and controlling methodologies and approaches have been developed as the technologies are started or developed. As human being, there are some concerns when using emerging technology. These concerns push developers to innovate ways to test, control, and manage new technologies. One of the most known approaches is based on the use of distributed architecture for the monitoring and controlling connected devices. This distributed design allows for central controlling component over the connected devices either using client server approach, or mobile data management approach which will be the focus on this survey to monitor mobile devices. This survey is the base to help building up the proposed project, which will research the different methods available for technology usage surveillance. The project will focus more on the parental control over children's tablet devices. Furthermore, the project will develop a controlling application for parental use on children's tablet devices. The proposed application may help guardians to not only control, but also evaluate the way their children handle and utilize the technologies available at their tablet devices. This survey is the base part of the project that includes the background for researching and developing the proposed application. The structure for this survey includes the background, the research challenges, applications, and overview of related work. The background reviews the security and network methodologies related to the main focus, and explains the main terminologies used in the related work. Then the survey includes the main difficulties that would face researchers on this area. Despite these challenges, there are vital applications for the monitoring and controlling concepts for education and work environment, which will be

covered under the application part of this survey. Then the survey includes deeper insight on some experiments, studies, and methods related to monitoring and controlling mobile devices.

1.1PROJECT OVERVIEW

Monitoring and controlling system can be used for different purposes. The aimed research and system after this survey mainly supports guardians wanting to control their children access to mobile devices and to trace their location using GPS system. Future application may be built upon using the same core idea can help gathering data from different areas to support researches on how children use their electronic devices. Such study may use big data analysis to understand patterns in children behaviour using mobile devices.

Another application is for schools and universities to manage the usage of the computers or any other electronic devices at the schools' labs. Teachers and professors can use controlling systems to set policies and define permission to access specific software. Researchers, also, may use monitoring systems to study the way students utilize their lab time. Furthermore, employers can use managing and controlling systems to evaluate electronic devices usage during work. The usage evaluation, either for students or employees, can not only affect productivity using electronic devices, but also affect overall performance. It may also lead to enhance the choices for software and applications needed in schools or work devices.

On the other hand, software developers need to utilize some controlling managing tools through the testing phase. Software testing may include a monitoring system for evaluating the components and the function required as properties from the software users.

SYSTEM STUDY

2. SYSTEM STUDY

2.1 EXISTING SYSTEM

There are several systems that are used for child tracking. All that system used to track the kid separately or in a group. Those systems are mainly used by the school authority to trace the child groups. That means to track the school bus or system that help to track a group their child's. The control over the system will belongs to the school authority. Some of the existing will help the parents to trace the child. Parent can view the location of the child.

Drawbacks of Existing System

- Low security.
- Limited range.
- Parents have no control over the system.

2.2 PROPOSED SYSTEM

The proposed Panto-math system that will help the parents to trace their child with the help of an android application. My system contains two android applications. One for child module and other one for the parent module. The child module is an android phone. The GPS system will find the current location and will send that data to the parent's application. The parent can view the current address of the child and can also trace him in the Google Map. The parent will get the attendance report based on the location of the child. While the child enter into the school location present report will be sent and while leaving the school absent report will be sent. The parent has the provision to set the school region. And the system provides the facility for emergency call. While a message "call" send to the parent module it automatically generates a call into the number which we provided. In our system child do not have any provision to change the settings.

Advantages of proposed system

- Real-Time tracking.
- Complete access to child's data.
- Possibility to add more children to parent's module.
- Prevents the child from going to restricted site.

2.3 MODULAR DESCRIPTION

The concept of this parental application is implanted by three main modules.

1. Admin.
2. Parent module.
3. Child module.

❖ Admin module:

- The admin module is a web page.
- First the admin needs to login to the web page created.
- In this module the admin can add sites or words those need not to be accessed or browsed by the child.
- He or she can manage the block-list also.
- The only person who can access these above mentioned options are strictly admin.

❖ Parent module:

- Add child or register a child and install the application on child's phone.
- Fetch message from child phone.
- Fetch call from child phone.
- Fetch contact from the child's phone.
- Fetch the app list from child phone.
- Real-time tracking of locations.
- Can block the unwanted sites.
- Get search history

❖ Child module

- Child phone retrieves information to send to the parent phone.
- Can only access the browser that is installed by the parent.
- The child have no specific function.
- It enables to track the location of the child via GPS.

SYSTEM SPECIFICATION

3. SYSTEM SPECIFICATION

3.1 SOFTWARE SPECIFICATION

Operating System	:	Any windows OS above Windows10.
Software	:	JDK 8 or higher.
Language	:	Java, Android.
Pages developed	:	Java server page and HTML.
Server	:	Apache tomcat web server 5.0.
Tools	:	Eclipse, Net-Beans 8.
Back End	:	MySQL.
Front End	:	Android.

3.2 HARDWARE SPECIFICATION

Operating System	:	Microsoft Windows 7 onwards.
Hard Disk	:	320 GB.
RAM	:	4 GB.
Processor	:	Core i3.

SYSTEM ANALYSIS

4. SYSTEM ANALYSIS

4.1 FEASIBILITY STUDY

In any Project, feasibility analysis is a very important stage; here the project is checked for its feasibility. Any project may face scarcity in resources, time or work force. Hence all these are to be studied in detail and a conclusion should be drawn whether the project under consideration is feasible or not. This analysis is a test of the proposed project, regarding its workability, impact on users and clients and resources management. Feasibility and risk involved are inversely related to each other. The main objective of feasibility is to test technical, operational and economic feasibility of a project.

4.1.1 TECHNICAL FEASIBILITY

Technical Feasibility centers around the existing computer system and do what extend it can support the proposed addition. Technical considerations evaluate existing hardware and software. This involves financial considerations to accommodate technical enhancements. Evaluating the technical feasibility is the trickiest part of a feasibility study. This is because, at this point in time, not too many detailed designs of the system, making it difficult to access issue like performance, cost, etc. A number of issues have to be considered while doing a technical analysis.

4.1.2 OPERATIONAL FEASIBILITY

Operational Feasibility is considered with the working of the system after its installation. The company has good record of development, installation, and maintenance of systems for its clients. So, this system can be installed in the client environment and the company will help in the maintenance of the system in future. Proposed projects are beneficial only if they can be turned into information system that will meet the organizations operating requirements simply stated, this test of feasibility asks if the system will work when it is developed and installed.

4.1.3 ECONOMIC FEASIBILITY

Economic analysis is the most frequent used method for evaluating the effectiveness of the system. Economic analysis determines whether the adoption of a system can be cost justified. More commonly known as cost benefit analysis, the procedure is to determine the benefits and compares them with costs. A simple economic analysis which gives the actual comparison of the cost and benefits are much meaningful in this case. It benefits outweigh costs, and then the decision is made to design and implement the system, Otherwise, further justifications or alternations in the proposed system will have to made if it is to have a change of being approved.

4.2 SOFTWARE ENGINEERING PARADIGM APPLIED

This establishment and use of sound engineering principles in order to obtain economically developed software that is reliable and works efficiently on real machines is called software engineering.

Software engineering is the discipline whose aim is:

1. Production of quality software.
2. Software that is delivered on time.
3. Cost within the budget.
4. Satisfies all requirement.

Software process is the way in which we produce the software. Apart from hiring smart, knowledgeable engineers and buying the latest development tools, effective software development process is also needed, so that engineers can systematically use the best technical and managerial practices to successfully complete their projects. A software life cycle is the series of identifiable stages that a software product undergoes during its lifetime. A software lifecycle model is a descriptive and diagrammatic representation of the software life cycle. A life cycle model represents all the activities required to make a software product transit to life cycle phases. It also captures the order in which these activities are to be taken.

4.3 Life Cycle Models

There are various Life Cycle Models to improve the software processes

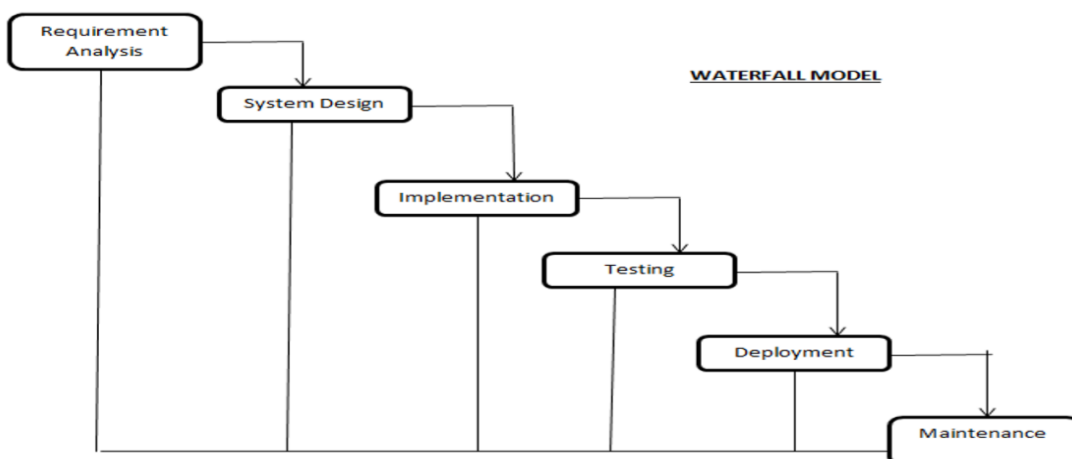
1. Waterfall Model.
2. Prototype Model.
3. Iterative Enhancement Model.
4. Evolutionary Model.
5. Spiral Model.

In this project waterfall model is followed.

Waterfall approach was first SDLC Model to be used widely in software engineering to ensure success of the project. In “The Waterfall” approach, the whole process of software development is divided into separate phrases. In this Waterfall model, typically, the outcome of one phrase acts as the input for the next phase sequentially.

The following illustration is a representation of the different phrases of the Waterfall Model:

Model:



➤ REQUIREMENT ANALYSIS

This phase involves understanding what needs to design and what is its function, purpose. Here, the specification of the input and output or the final product are studied and marked.

➤ SYSTEM DESIGN

The requirement specification from the first phase are studied in this phase and system design is prepared. System design helps in specifying hardware and system requirements and also helps in defining overall system architecture. The software code to be written in the next stage is created now.

➤ IMPLEMENTATION

With inputs from the system design, the system is developed in small programs called units, which are integrated into the next phase. Each unit is developed and tested for its functionality which is referred to as a Unit Testing.

➤ INTEGRATION AND TESTING

All the units developed in the implementation phase are integrated into a system after testing of each unit. The software designed, needs to go through constant software testing to find out if there any faults or errors. Testing is done so that the client does not face any problem during the installation of the software.

➤ DEPLOYMENT OF THE SYSTEM

Once the functional and non-functional testing is done, the product is deployed in the customer environment or released into the market.

SYSTEM DESIGN

5. SYSTEM DESIGN

5.1 INTRODUCTION

System design is the solution to the creation of a new system. This is the important aspect made up of several steps. System design is the process of developing specifications for a candidate system that meet the criteria established in the system analysis. Major step in system design is the preparation of the input forms and output reports in a form applicable to the users. The main objective of system design is to use the package easily by a computer operator. System design is the creative act of invention, developing new inputs, a database, off-line files, method, procedures and output for processing business to meet an organization objective. System design-built information gathered during the system analysis. The complete, efficient and successful system should provide the following in successions:

- From where should we start.
- Where we have to go.
- Where should we stop.

If the project is to be successful, we will need to answer these questions. The answer of these questions is schema manner and is known as system design. A systematic manner will be followed so as to achieve beneficial result at the end. It involves starting with a vague idea and ultimately developing it up to a useful system. The design phase is transition from a user oriented to a document oriented to the programmers. Software report can be broken into a series of steps starting with the basic ideas and ending with the finished projects.

5.2 DATABASE DESIGN

The Database design is the process of producing a detailed data model of a database. The logical data model contains all the needed logical and physical design choices and physical

storage parameters needed to generate a design in a Data Definition Language, which can then be used to create a database. A fully attributes for each entry. The term database design can be used to describe many different parts of the design of an overall database system. Principally, and most correctly, it can be thought of as the logical design of the base data structures used to store the data. In the relational model, these are the tables and views. In an object database, the entities and relationships map directly to object classes and named relationships. However, the term database design could also be used to apply to the overall process of designing, not just the base data structures, but also the forms and queries used as part of the overall database applications within the database management system.

➤ NORMALIZATION

The process of normalization is concerned with the transformation of the conceptual schema to a computer represent able form. Normalization reduces the redundancies and anomalies.

➤ THE FIRST NORMAL FORM

First Normal form does not allow multivalued and composite valued attributes. It states that the domain of an attribute must include only atomic values and that value of any attribute in a table must be single value from the domain of that attribute. **THE SECOND NORMAL FORM** In Second Normal form, for relation where primary key contains multiple attributes, on key attribute should not be functionally dependent on a part of the primary key.

➤ THE THIRD NORMAL FORM

In Third Normal form, relation should not have a non-key attribute functionally determined by non-key attribute. That is there should be no transitive dependency of a non-key attribute on the primary key.

5.3 TABLE DESIGN

registration_tb

FIELD NAME	DATA TYPE	SIZE	REMARKS
<u>reg_id</u>	int	100	User ID
parent_name	varchar	100	Name of Parent
mobile	varchar	200	Parent Mobile
email	varchar	100	Parent Email
password	varchar	100	

child_ban_browser_tb

FIELD NAME	DATA TYPE	SIZE	REMARKS
browse_id	int	100	Browser used
child_id	int	100	Child ID
parent_id	int	100	Parent ID
search_content	Varchar	250	Content searched
timestamp	Varchar	200	Time when searched

child_reg_tb

FIELD NAME	DATA TYPE	SIZE	REMARKS
child_id	int	100	Child ID
child_name	varchar	200	Name of Child
child_imei	varchar	200	Child device IMEI
child_mob	varchar	200	Child mobile number
parent_id	varchar	200	Reference to parent
parent_name	varchar	200	Parent name

child_device

FIELD NAME	DATA TYPE	SIZE	REMARKS
tab_id	int	11	
child_id	varchar	50	Child ID
child_name	varchar	200	Child name
contacts	longblob		Contacts in device
message	longblob		Messages in device
calls	longblob		Calls in device
apps	longblob		Apps in device
dev_latti	double		Latitude of position
dev_longi	double		Longitude of position

banlist_tb

FIELD NAME	DATA TYPE	SIZE	REMARKS
id	int	200	ID
url	varchar	500	Banned URLs
status	varchar	20	Banned or not

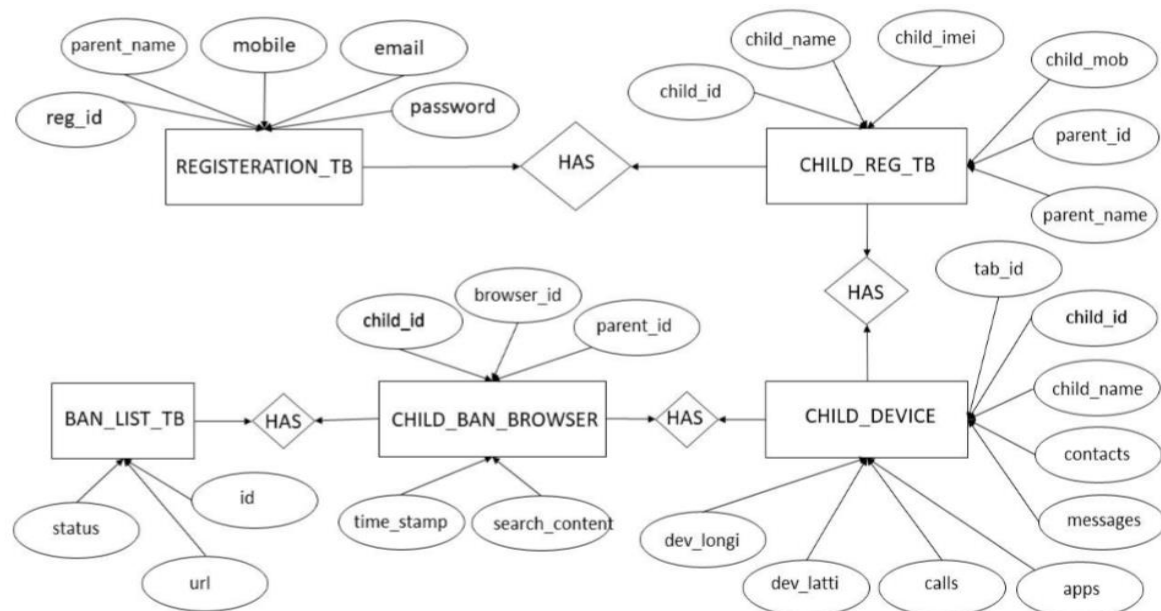
5.4 ENTITY-RELATIONSHIP MODEL

Database designs also includes ER (Entity-Relationship model) diagrams. An ER diagram is a diagram that helps to design databases in an efficient way.

Attributes in ER diagrams are usually modelled as an oval with the name of the attribute, linked to the entity or relationship that contains the attributes. Within the relational model, the final step can generally be broken down into two further steps that of determining what are

the basic objects about which information, is being stored and then determining the relationships, or objects. This step is not necessary with an object database.

ER DIAGRAM



5.5 PROCESS DESIGN (DATA FLOW DIAGRAM)

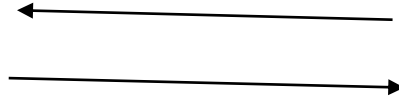
A data flow diagram (DFD) is a graphical representation of the “flow” of data through an information system, modelling its process aspects. Often, they are a preliminary step used to create an overview of the system which can later be elaborated. DFDs shows what kind of information will be input to and output from the system, where the data will come from and go to, and where the data will be stored. It does not show information about the timing of the processes, or information about whether processes will operate in sequence or in parallel.

DFD SYMBOLS

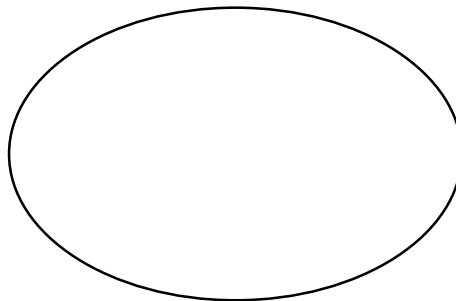
1. A SQUARE defines a source or destination of system data.



2. An ARROW identifies data flow or data in motion. It is a pipeline through which information flows.



3. A CIRCLE or a BUBBLE represents a process transforms incoming data flow into outgoing data flow.



4. An OPEN RECTANGLE is a data store or data at rest or a temporary test repository of data.



Note that the DFD describes what data flow rather than they are processed, so it does not depend on hardware, software and data structure or file organization. One of the tools of structured analysis is the diagram. A data flow diagram is a graphical representation of the system. The analyst can use data flow diagram to explain this understanding about the system.

- Data flows are an initiative way of showing how data is processed by a system
- Data flow models are used to show how data flows through a sequence of processing steps.

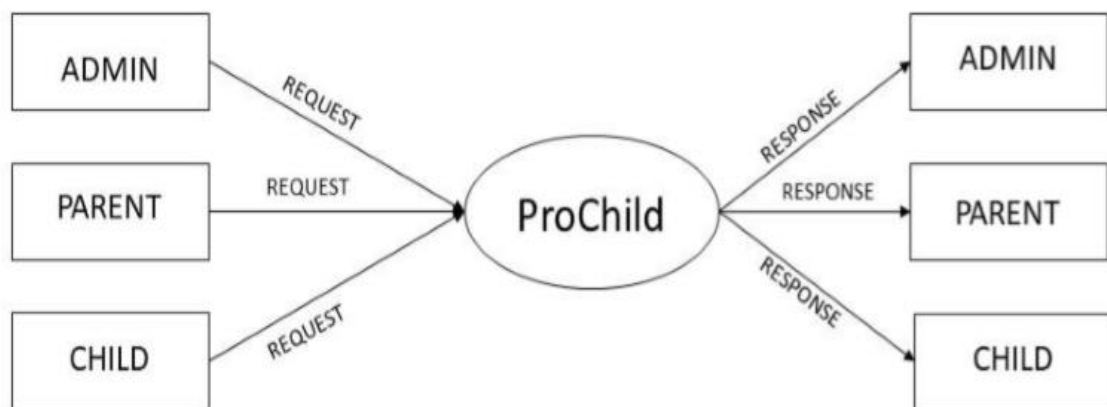
Four steps are commonly used to construct a DFD:

1. Process should be named and numbered for easy references.

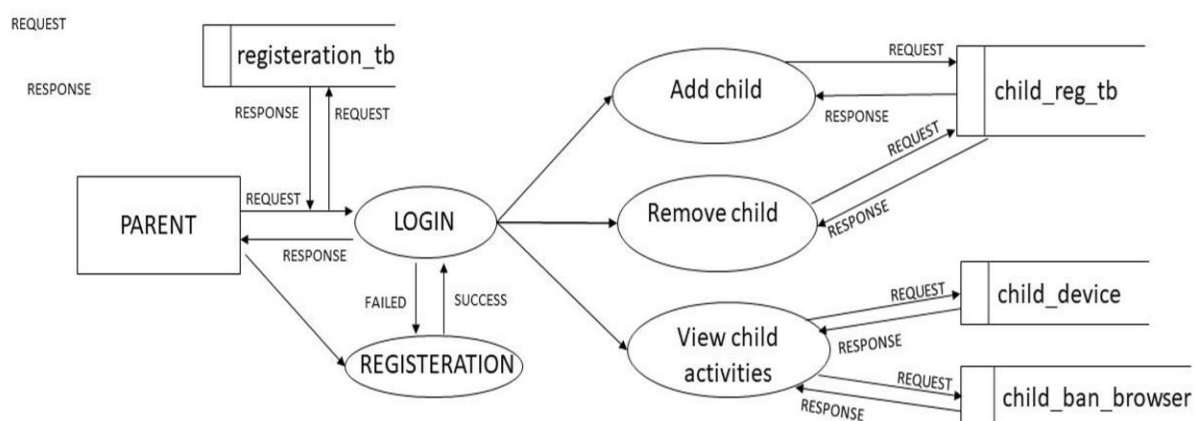
2. The direction of flow is from top to bottom and from left to right.
3. When a process is exploded into lower level details, they are numbered.
4. The name of data stores, sources and destinations are written in capital letters.

DATA FLOW DIAGRAM

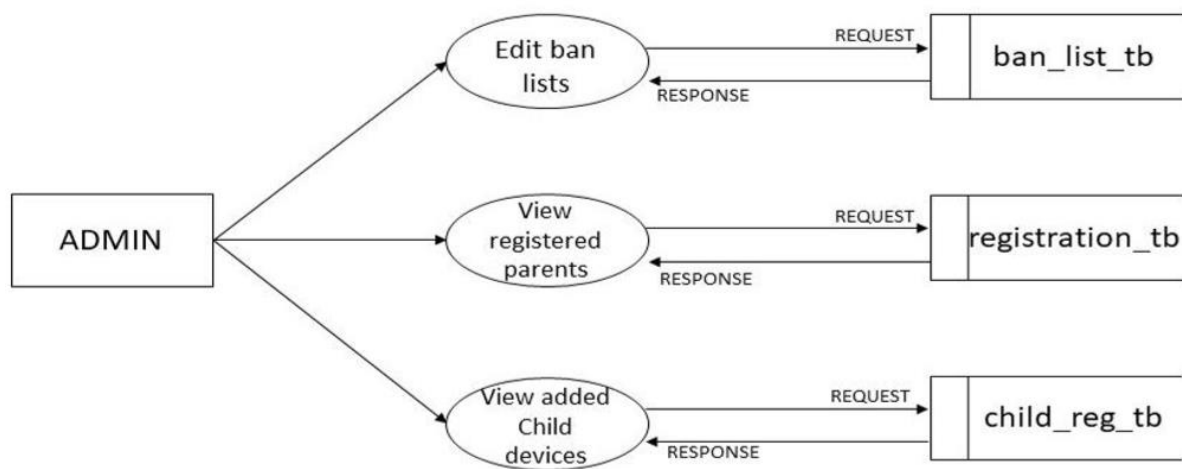
LEVEL-0 CONTEXT DIAGRAM



LEVEL-1 DFD – PARENT



LEVEL-1 DFD – ADMIN



5.6 OBJECT ORIENTED DESIGN (UML DIAGRAM)

UML, short for Unified Modelling Language, is a standardized modelling language consisting of an integrated set of diagrams, developed to help system and software developers for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modelling and other non-software systems. The UML represents a collection of best engineering practices that have proven successful in the modelling of large and complex systems. The UML is a very important part of developing object-oriented software and the software development process. The UML uses mostly graphical notations to express the design of software projects. Using the UML helps project teams communicate, explore potential designs, and validate the architectural design of the software.

The UML is one of the most existing tools in the world of system developed today. The UML enables system builders to create blue prints that capture their visions in a standard and easy way to understand and communicate them to others. UML stands for Unified Modelling Language which is used in object-oriented software engineering. Although typically used in software engineering it is a rich language that can be used to model an application structures, behaviour and even business processes. There are 14 UML diagram types to help you model

this behaviour. They can be divided into two main categories structure diagrams and behavioural diagrams.

List of UML Diagram Types:

- Activity Diagram.
- Class Diagram.
- Collaboration Diagram.
- Component Diagram.
- Communication Diagram.
- Interaction Diagram.
- Package Diagram.
- Sequence Diagram.
- State machine Diagram.
- Use case diagram.

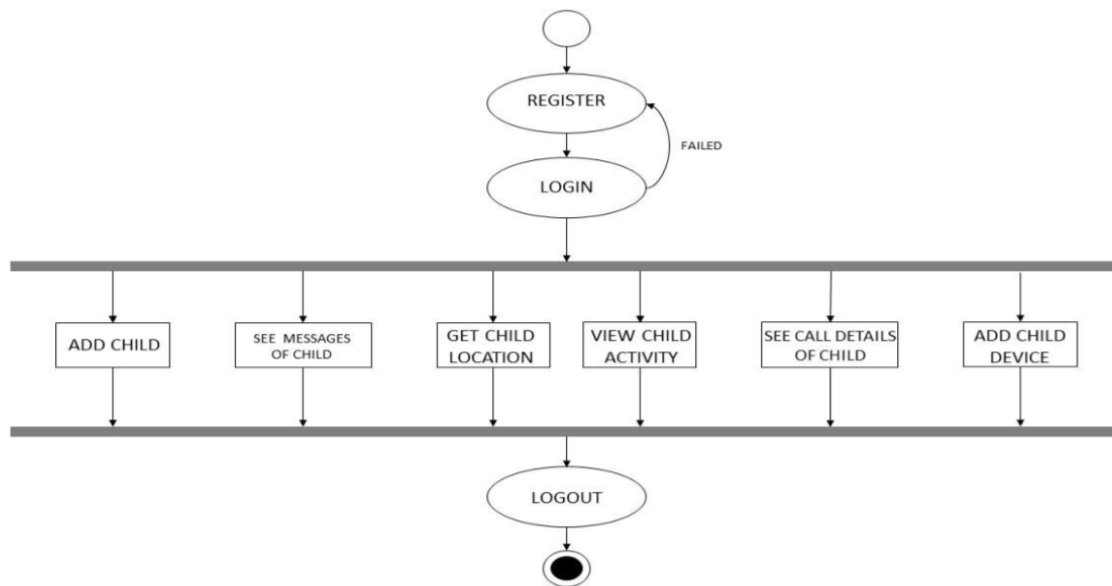
5.6.1 ACTIVITY DIAGRAM

An activity diagram is a behavioural diagram i.e. it depicts the behaviour of a system. An activity diagram portrays the control flow from a start point to a finish point showing the various decision paths that exist while the activity is being executed.

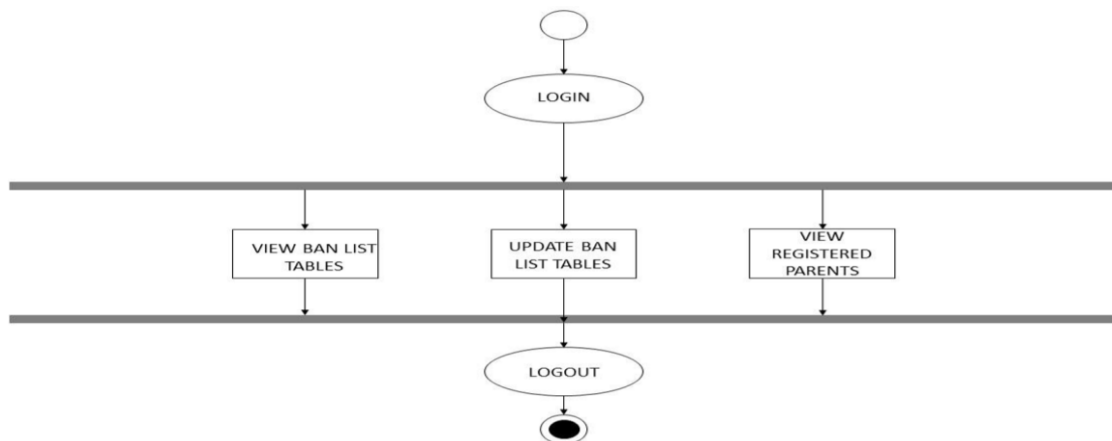
An activity diagram visually presents a series of actions or flow of control in a system similar to a flowchart or a data flow diagram. Activity diagrams are often used in business process modelling. They can also describe the steps in a use case diagram. Activities modelled can be sequential and concurrent. In both cases an activity diagram will have a beginning (an initial state) and an end (a final state).

Activity diagrams are graphical representations of workflows of stepwise activities and actions with support for choice, iteration and concurrency.

ACTIVITY DIAGRAM-PARENT



ACTIVITY DIAGRAM-ADMIN



5.6.2 SEQUENCE DIAGRAM

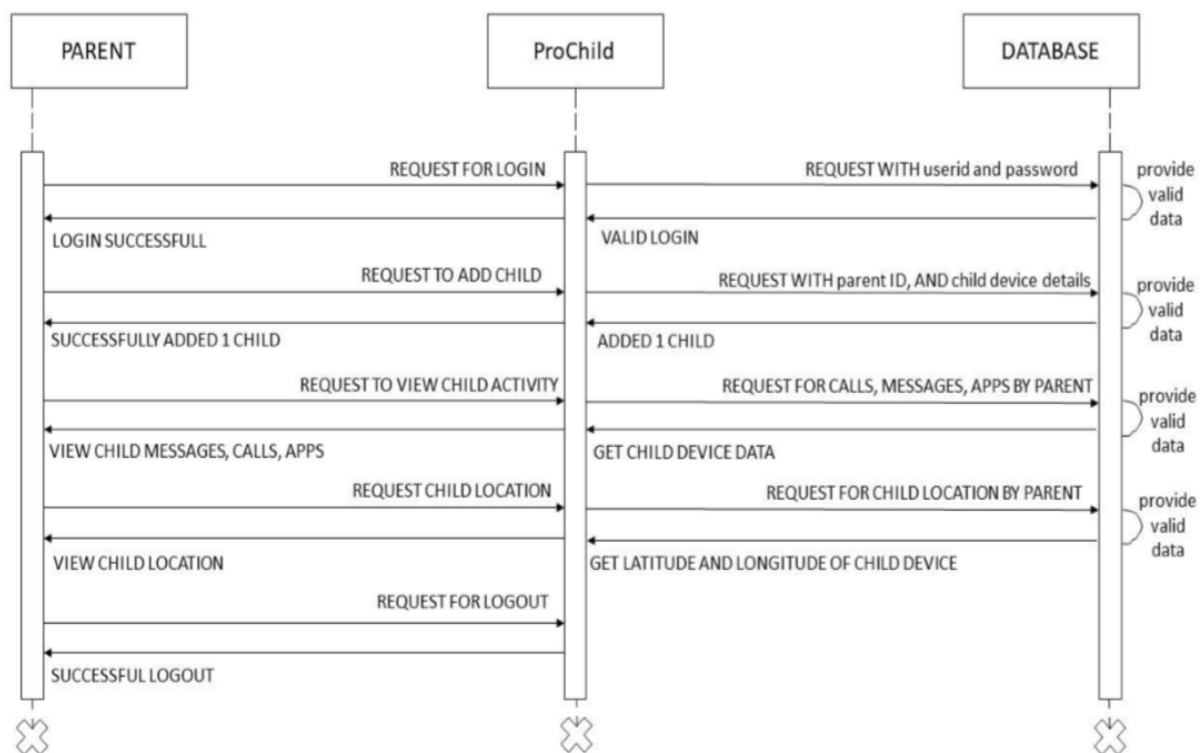
A sequence diagram shows object interactions arranged in time sequence. It depicts the objects and classes involved in the scenario and the sequence of messages exchanged between the objects needed to carry out the functionality of the scenario. Sequence diagrams are typically

associated with use case realizations in the Logical View of the system under development. Sequence diagrams are sometimes called event diagrams or event scenarios.

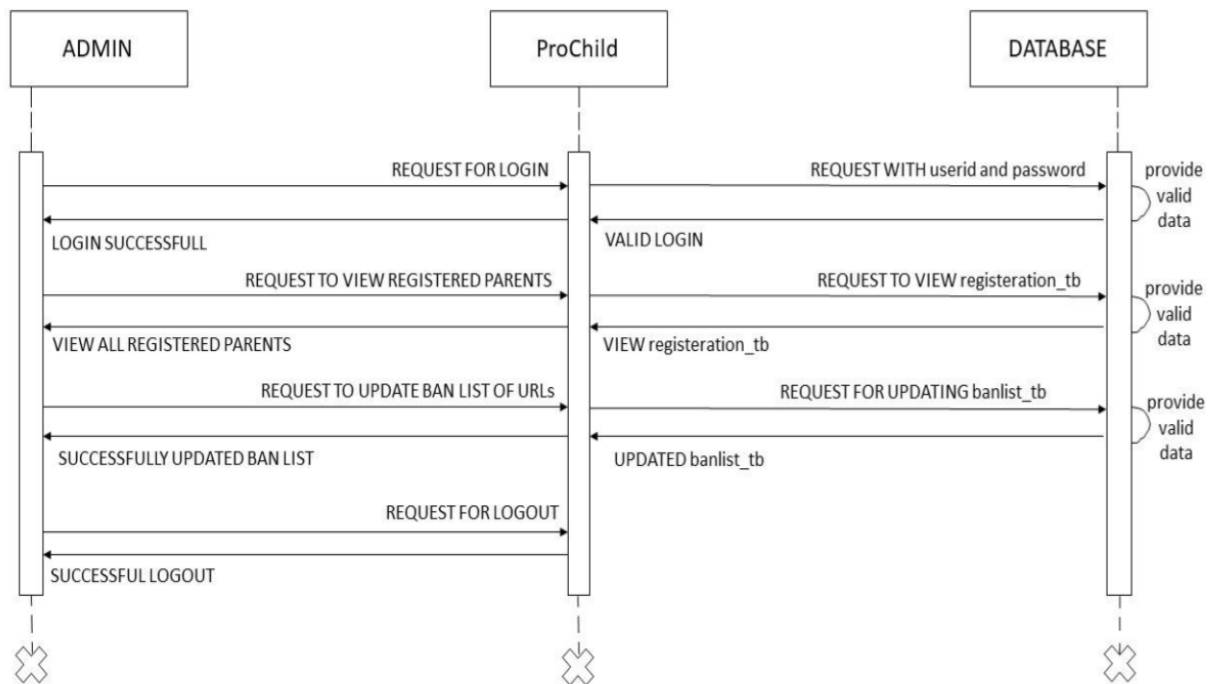
A sequence diagram shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur. This allows the specification of simple runtime scenarios in a graphical manner.

Sequence diagrams describe interactions among classes in terms of an exchange of messages over time. They're also called event diagrams. A sequence diagram is a good way to visualize and validate various runtime scenarios. These can help to predict how a system will behave and to discover responsibilities a class may need to have in the process of modelling a new system.

SEQUENCE DIAGRAM-PARENT

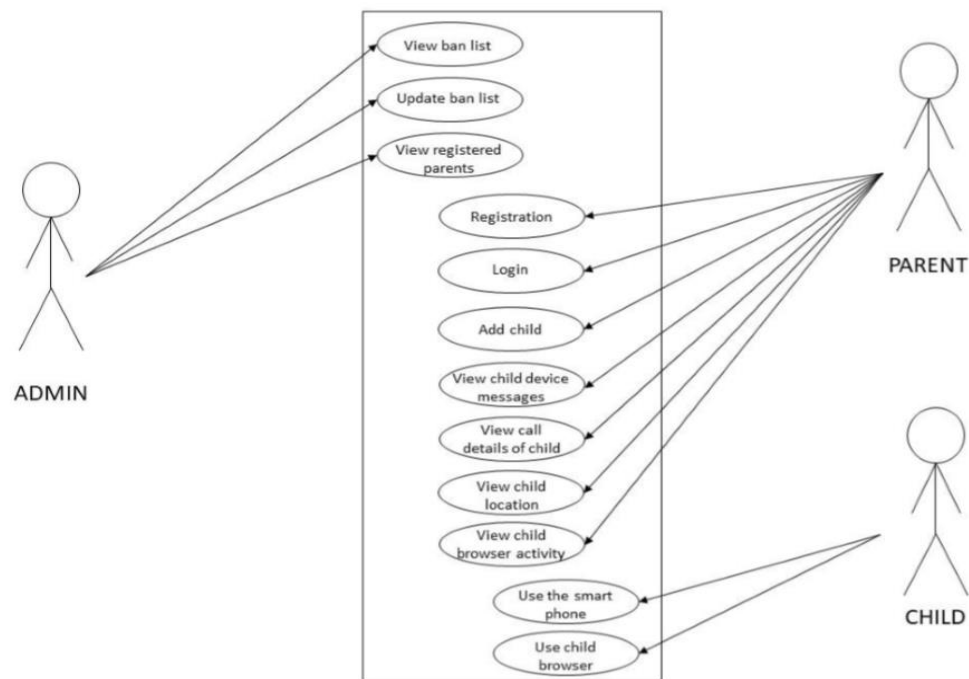


SEQUENCE DIAGRAM-ADMIN



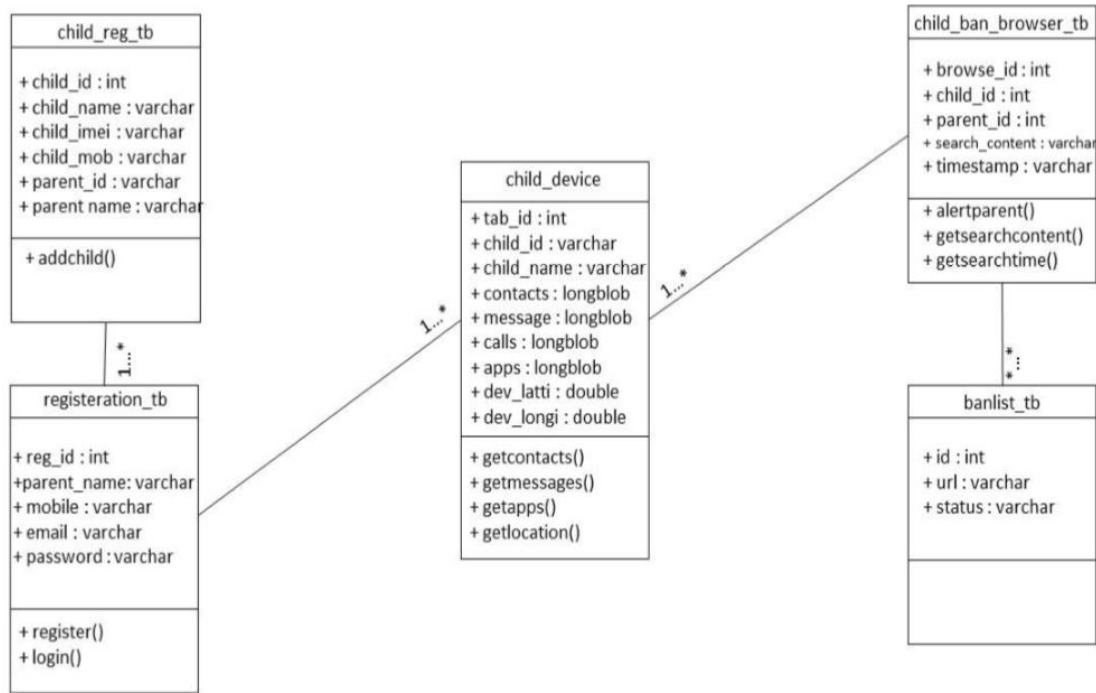
5.6.3 USE-CASE DIAGRAM

A Use-case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between use cases in which the user is involved. A use-case diagram can identify the different types of users of a system and the different use case and will often be accomplished by other types of diagrams as well. The use cases are represented by either circles or ellipses.



CLASS DIAGRAM

Class diagram is a static diagram. It represents the static view of an application. Class diagram is not only used for visualizing, describing, and documenting different aspects of a system but also for constructing executable code of the software application. Class diagram describes the attributes and operations of a class and also the constraints imposed on the system. The class diagrams are widely used in the modelling of object-oriented systems because they are the only UML diagrams, which can be mapped directly with object-oriented languages. This shows a collection of classes, interfaces, associations, collaborations, and constraints. It is also known as a structural diagram. The purpose of class diagram is to model the static view of an application. Class diagrams are the only diagrams which can be directly mapped with object-oriented languages and thus widely used at the time of construction. The purpose of the class diagram, Analysis and design of the static view of an application. Describe responsibilities of a system. Base for component and deployment diagrams. Forward and reverse engineering.



5.7 INPUT DESIGN

User interface design is very important for any application. The interface design describes how the software communicates within itself, to system that interpreted with it and with humans who use it. The input design is the process of converting the user-oriented inputs into the computer-based format. Input design is a part of overall system design, which requires very careful attention. If data going into the system is correct, then the processing and output will magnify these errors. Thus, the designer has a number of clear objectives in the different stages of input design

- To produce a cost-effective method of input.
- To achieve the highest possible level of accuracy.
- To ensure that input is acceptable to and understand by the user.

Inaccurate input data is most common cause of data processing errors. If poor input design-particularly where operators must enter data from source documents-permits bad data to enter

a computer system, the outputs produced are of little value. The input design process was initiated in the study phase where, as a part of the feasibility study:

1. Input data were found to be available for establishing and maintaining master and transaction files and for creating output records.
2. The most suitable types of input media, for either off-line or on-line devices were selected after a study of alternative data capture techniques.

The data is fed into the system using simple inactive forms. The forms have been supplied with messages so that the user can enter data without facing any difficulty. This data is validated wherever it requires in the project. This ensures that only the correct data have been incorporated into system. The goal of designing input data is to make the automation as easy and free from errors as possible. For providing a good input design for the application easy data input and selection features are adopted. The input design requirements such as user friendliness, consistent format and interactive dialogue for giving the right messages for the user at the right time are also considered for development for this project.

5.8 OUTPUT DESIGN

A quality output is one, which meets the requirements of end user and presents the information clearly. In any system result of processing are communicated to the user and to the other system through outputs. In the output design it is determined how the information is to be displayed for immediate need. It is the most important and direct source information to the user. Efficient and intelligent output design improves the system's relationships with the user and helps in decision –making.

The objective of the output design is to convey the information of all the past activities, current status and to emphasis important events. The output generally refers to the results and information that is generated from the system. Outputs from computers are required primarily to communicate the results of processing to the users. At the beginning of the output design various types of outputs such as external, internal, operational, and interactive and turnaround are defined. Then the format, content, location, frequency, volume and sequence of the outputs

are specified. The content of the output must be defined in detail. The system analysis has two specific objectives at this stage.

- To interpret and communicate the results of the computer part of a system to the users in a form, which they can understand, and which meets their requirements.
- To communicate the output design specifications to programmers in a way in which it is unambiguous, comprehensive and capable of being translated into a programming language.

TECHNOLOGY PROFILE

6. TECHNOLOGY PROFILE

6.1 ANDROID STUDIO

Android Studio is the official integrated development environment (IDE) for Google's Android operating system, built on JetBrains' IntelliJ IDEA software and designed specifically for Android development. It is available for download on Windows, macOS and Linux based operating systems. It is a replacement for the Eclipse Android Development Tools (ADT) as the primary IDE for native Android application development.

Android Studio was announced on May 16, 2013 at the Google I/O conference. It was in early access preview stage starting from version 0.1 in May 2013, then entered beta stage starting from version 0.8 which was released in June 2014. The first stable build was released in December 2014, starting from version 1.0.

On May 7, 2019, Kotlin replaced Java as Google's preferred language for Android app development. Java is still supported, as is C++.

FEATURES

The following features are provided in the current stable version:

- Gradle-based build support
- Android-specific refactoring and quick fixes
- Lint tools to catch performance, usability, version compatibility and other problems
- ProGuard integration and app-signing capabilities
- Template-based wizards to create common Android designs and components

- A rich layout editor that allows users to drag-and-drop UI components, option to preview layouts on multiple screen configurations.

Support for building Android Wear apps.

Built-in support for Google Cloud Platform, enabling integration with Firebase Cloud Messaging (Earlier 'Google Cloud Messaging') and Google App Engine.

Android Virtual Device (Emulator) to run and debug apps in the Android studio.

Android Studio supports all the same programming languages of IntelliJ (and CLion) e.g. Java, C++, and more with extensions, such as Go; and Android Studio 3.0 or later supports Kotlin and "all Java 7 language features and a subset of Java 8 language features that vary by platform version." External projects backport some Java 9 features. While IntelliJ that Android Studio is built on supports all released Java versions, and Java 12, it's not clear to what level Android Studio supports Java versions up to Java 12 (the documentation mentions partial Java 8 support). At least some new language features up to Java 12 are usable in Android.

System requirements

The Android Emulator has additional requirements beyond the basic system requirements for Android Studio, which are described below:

- SDK Tools 26.1.1 or higher;
- 64-bit processor;
- Windows: CPU with UG (unrestricted guest) support;
- HAXM 6.2.1 or later (HAXM 7.2.0 or later recommended).

The use of hardware acceleration has additional requirements on Windows and Linux:

- Intel processor on Windows or Linux: Intel processor with support for Intel VT-x, Intel EM64T (Intel 64), and Execute Disable (XD) Bit functionality;
- AMD processor on Linux: AMD processor with support for AMD Virtualization (AMD-V) and Supplemental Streaming SIMD Extensions 3 (SSSE3);

- AMD processor on Windows: Android Studio 3.2 or higher and Windows 10 April 2018 release or higher for Windows Hypervisor Platform (WHPX) functionality.

To work with Android 8.1 (API level 27) and higher system images, an attached webcam must have the capability to capture 720p frames.

6.2 NETBEANS

NetBeans is an integrated development environment (IDE) for Java. NetBeans allows applications to be developed from a set of modular software components called modules. ... In addition to Java development, it has extensions for other languages like PHP, C, C++, HTML5, and JavaScript.

The NetBeans Platform is a framework for simplifying the development of Swing desktop applications. The NetBeans IDE bundle for Java SE contains what is needed to start developing NetBeans plugins and NetBeans Platform based applications; no additional SDK is required.

Applications can install modules dynamically. Any application can include the Update Center module to allow users of the application to download digitally signed upgrades and new features directly into the running application. Reinstalling an upgrade or a new release does not force users to download the entire application again.

The platform offers reusable services common to desktop applications, allowing developers to focus on the logic specific to their application.

Among the features of the platform are:

- User interface management (e.g. menus and toolbars)
- User settings management
- Storage management (carries out efficient storage)
- Window management

- Wizard framework (supports step-by-step dialogs)
- NetBeans Visual Library
- Integrated development tools

NetBeans IDE is an open-source integrated development environment. NetBeans IDE supports development of all Java application types (Java SE (including JavaFX), Java ME, web, EJB and mobile applications) out of the box. Among other features are an Ant-based project system, Maven support, refactorings, version control (supporting CVS, Subversion, Git, Mercurial and Clearcase).

Modularity: All the functions of the IDE are provided by modules. Each module provides a well-defined function, such as support for the Java language, editing, or support for the CVS versioning system, and SVN. NetBeans contains all the modules needed for Java development in a single download, allowing the user to start working immediately. Modules also allow NetBeans to be extended. New features, such as support for other programming languages, can be added by installing additional modules. For instance, Sun Studio, Sun Java Studio Enterprise, and Sun Java Studio Creator from Sun Microsystems are all based on the NetBeans IDE.

License: The IDE is licensed under the Apache License 2.0. Previously, from July 2006 through 2007, NetBeans IDE was licensed under Sun's Common Development and Distribution License (CDDL), a license based on the Mozilla Public License (MPL). In October 2007, Sun announced that NetBeans would henceforth be offered under a dual license of the CDDL and the GPL version 2 licenses, with the GPL linking exception for GNU Classpath. Oracle has donated NetBeans Platform and IDE to the Apache Foundation where it underwent incubation and graduated as a top level project in April 2019.

6.3 WAMP

Wamp-Server is a Web development platform on Windows that allows you to create dynamic Web applications with Apache2, PHP, MySQL and MariaDB. Wamp-Server automatically installs everything you need to intuitively develop Web applications. You will be able to tune your server without even touching its setting files.

Stands for "Windows, Apache, MySQL, and PHP." WAMP is a variation of LAMP for Windows systems and is often installed as a software bundle (Apache, MySQL, and PHP). It is often used for web development and internal testing, but may also be used to serve live websites.

The most important part of the WAMP package is Apache (or "Apache HTTP Server") which is used run the web server within Windows. By running a local Apache web server on a Windows machine, a web developer can test webpages in a web browser without publishing them live on the Internet.

WAMP also includes MySQL and PHP, which are two of the most common technologies used for creating dynamic websites. MySQL is a high-speed database, while PHP is a scripting language that can be used to access data from the database. By installing these two components locally, a developer can build and test a dynamic website before publishing it to a public web server.

While Apache, MySQL, and PHP are open source components that can be installed individually, they are usually installed together. One popular package is called "WampServer," which provides a user-friendly way to install and configure the "AMP" components on Windows.

NOTE: The "P" in WAMP can also stand for either Perl or Python, which are other scripting languages. The Mac version of LAMP is known as MAMP.

CONCLUSION

7. CONCLUSION

Panto-math is a complete solution for ensuring the safety of kids. By using GPS system parent can trace the current location of the child simply with the help of an android mobile. Panto-math system gives a facility to monitor the motion of a child .This system will provide exact address of current location with great accuracy. Each parent can monitor the movements of their children by using this android application. Parent can be an android mobile phone with the application in it. The child module can be either an android mobile, android watch or Android navigators. The database is used to monitor the location of the child and also admin can provide the complete control over child phone to parent. The parent application get details about the contact lists, message list, installed applications list, browser history etc.

FUTURE ENHANCEMENT

8. FUTURE ENHANCEMENT

Monitoring and controlling system can be used for different purposes. The aimed research and system after this survey mainly supports guardians wanting to control their children access to mobile devices. Future application may be built upon using the same core idea can help gathering data from different areas to support researches on how children use their electronic devices. Such study may use big data analysis to understand patterns in children behavior using mobile devices. Another application is for schools and universities to manage the usage of the computers or any other electronic devices at the schools' labs. Teachers and professors can use controlling systems to set policies and define permission to access specific software. Researchers, also, may use monitoring systems to study the way students utilize their lab time. Furthermore, employers can use managing and controlling systems to evaluate electronic devices usage during work. The usage evaluation, either for students or employees, can not only affect productivity using electronic devices, but also affect overall performance. It may also lead to enhance the choices for software and applications needed in schools or work devices. On the other hand, software developers need to utilize some controlling managing tools through the testing phase. Software testing may include a monitoring system for evaluating the components and the function required as proprieties from the software users.

REFERENCE

9. REFERENCE

- [1] Kelly Wallace, CNN. "Forget TV! iPhones and iPads dazzle babies". 7 October, 2014.
- [2] Joanna Walters, The Guardian. "Tablets and smartphones may affect social and emotional development, scientists speculate". 2 February, 2015.
- [3] "The Android Source Code." The Android Source Code. Web. 21 Dec. 2015.
- [4] Bhatia, Randeep, ed. "Introduction of Android Programming." 16 Feb. 2012.
- [5] Dennis, Alan, Barbara Haley Wixom, and Roberta M. Roth. Systems analysis and design. John Wiley & Sons, 2014.
- [6] Android.com. (2016). Android. [online] Available at: <https://www.android.com> [Accessed 25 Apr. 2016].
- [7] Android.Developers.[online] Developer.android.com. Available at: <http://developer.android.com/distribute/tools/open-distribution.html> [Accessed 25 Apr. 2016].
- [8] AndroidStudioOverview|AndroidDevelopers.[online] Developer.android.com. Available at: <http://developer.android.com/tools/studio/index.html> [Accessed 25 Apr. 2016].
- [9] Genymotion – Fast And Easy Android Emulation. [online] Available at: <https://www.genymotion.com>
- [10] Microsoft Store. (2016). Microsoft Store - Xbox, Surface 3 Tablet, PC, Office, Windows Phone. [online] Available at: <http://www.microsoftstore.com> [Accessed 26 Apr. 2016].

CODE

10.CODE

```
//.....parent get details(Lists).....
//.....

//.....*****.....
.....
if (key.equals("getcalllist")) {

    String child_id = request.getParameter("child_id");

    fetch_app_qry = "SELECT `calls` FROM `child_device` WHERE `child_id` ="
+ child_id + "";

    System.out.println(fetch_app_qry);

    Iterator i = (Iterator) con.getData(fetch_app_qry).iterator();

    if (i.hasNext()) {
        Vector v = (Vector) i.next();

        out.println(v.get(0));

        System.out.println("Call details :: " + v.get(0));

    } else {
        out.println("key02");
    }
}
if (key.equals("getcontactlist")) {

    String child_id = request.getParameter("child_id");
```

```
fetch_app_qry = "SELECT `contacts` FROM `child_device` WHERE `child_id`  
=" + child_id + "";
```

```
System.out.println(fetch_app_qry);
```

```
Iterator i = (Iterator) con.getData(fetch_app_qry).iterator();
```

```
if (i.hasNext()) {
```

```
    Vector v = (Vector) i.next();
```

```
    out.println(v.get(0));
```

```
    System.out.println("Message details :: " + v.get(0));
```

```
    } else {
```

```
        out.println("key02");
```

```
    }
```

```
}
```

```
if (key.equals("locate_child")) {
```

```
    String child_id = request.getParameter("child_id");
```

```
    locate_child_qry = "SELECT `dev_latti`,`dev_longi`,`child_name` FROM  
`child_device` WHERE `child_id`=" + child_id + "";
```

```
System.out.println(locate_child_qry);
```

```
Iterator i = (Iterator) con.getData(locate_child_qry).iterator();
```

```
if (i.hasNext()) {
```

```
    Vector v = (Vector) i.next();
```

```
    out.println(v.get(0) + ":" + v.get(1) + ":" + v.get(2));
```

```
        System.out.println(v.get(0) + ":" + v.get(1) + ":" + v.get(2));

    } else {
        out.println("key02");
    }
}

if (key.equals("browser_log")) {

    String child_id = request.getParameter("child_id");
    String parent_id = request.getParameter("parent_id");

    String urls = "", timestamps = "";

    locate_child_qry = "select * from `child_ban_browse_tb` where `child_id` = " +
child_id + " and `parent_id` = " + parent_id + "";

    System.out.println(locate_child_qry);

    Iterator i = (Iterator) con.getData(locate_child_qry).iterator();
    if (i.hasNext()) {
        while (i.hasNext()) {

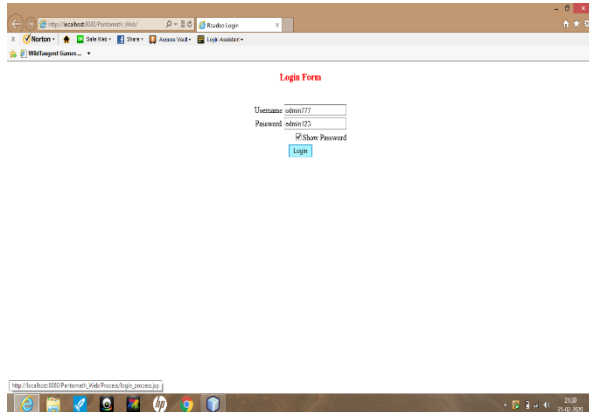
            Vector v = (Vector) i.next();
            urls += v.get(3) + "#";
            timestamps += v.get(4) + "#";
        }
        out.println(urls + "@" + timestamps);
        System.out.println(urls + "@" + timestamps);
    } else {
        out.println("key02");
    }
}
```

APPENDIX

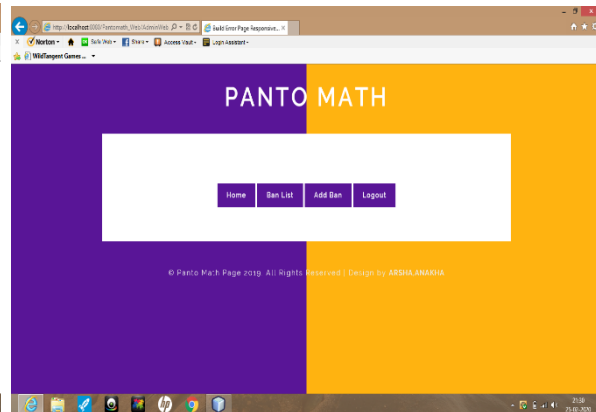
11.APPENDIX

11.1 SCREENSHOTS

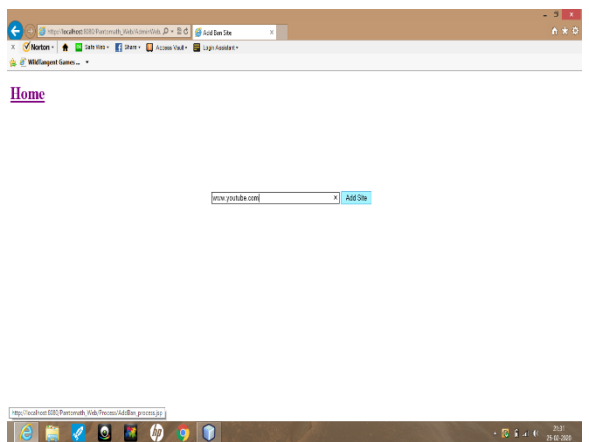
➤ ADMIN



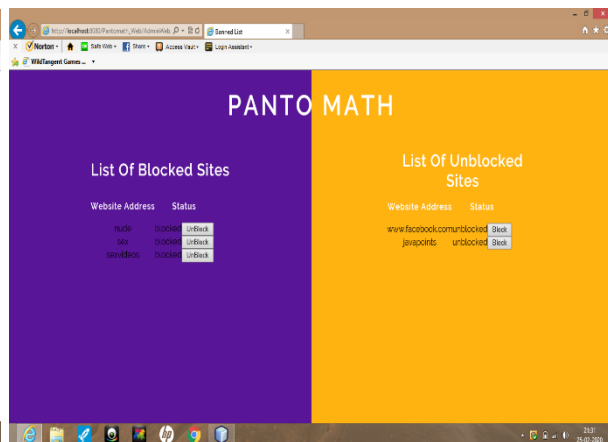
Login page of the ADMIN.



Build-Error page of the ADMIN.

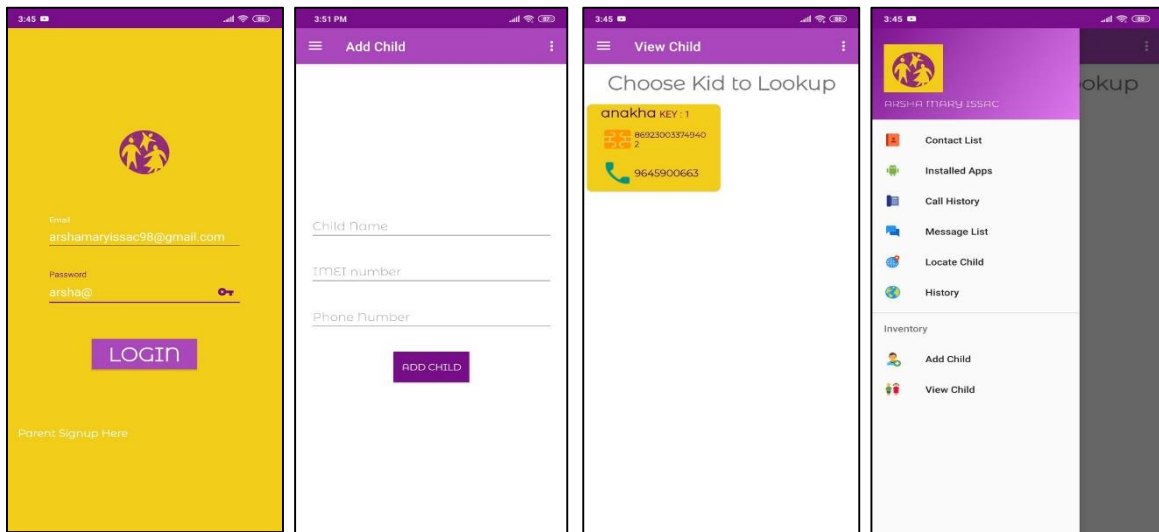


Home page of ADMIN



Ban list managing page

➤ PARENT

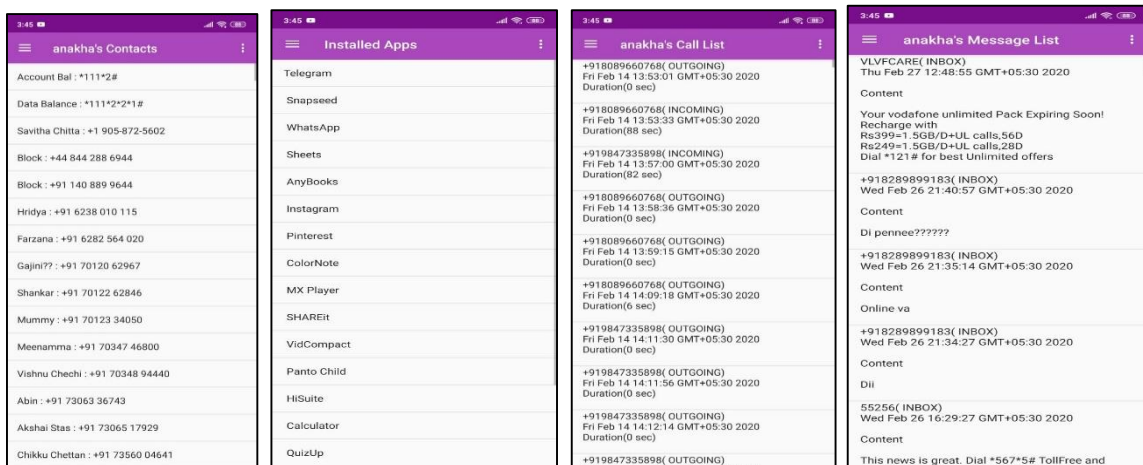


Login page of parent.

Add child.

View child.

Information retrieval list.

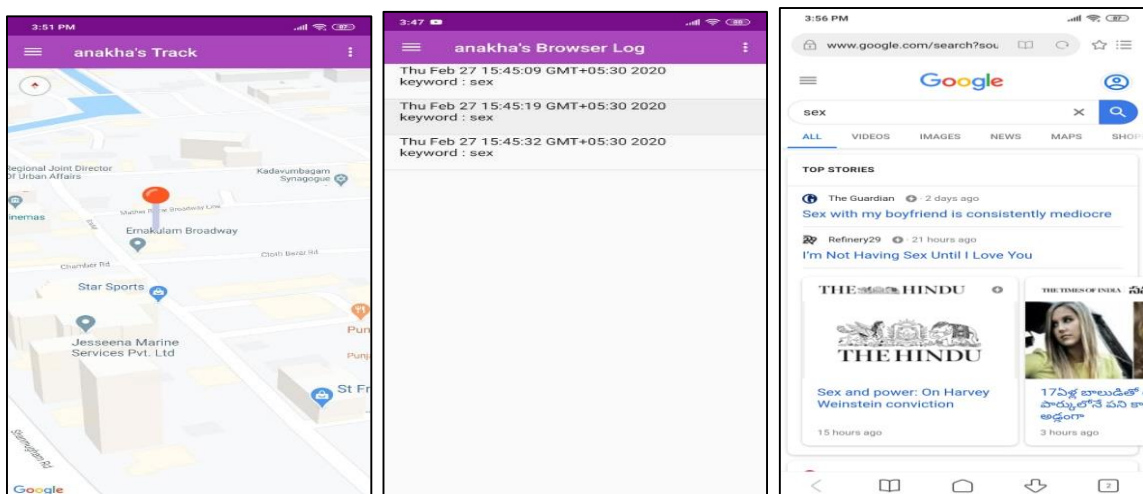


Contact list.

App list.

Call history.

Message list.

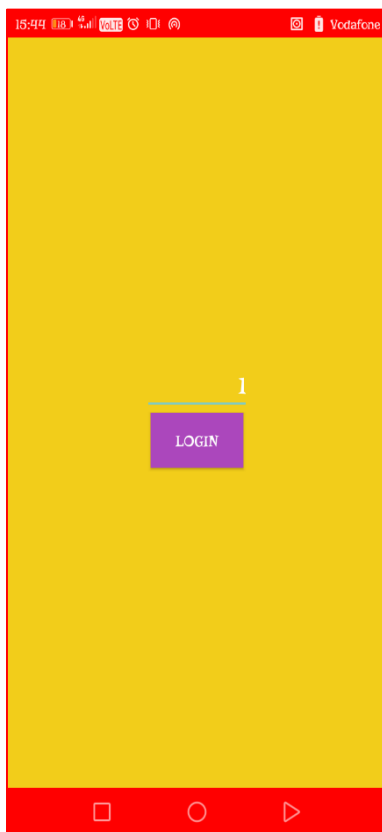


Locating child.

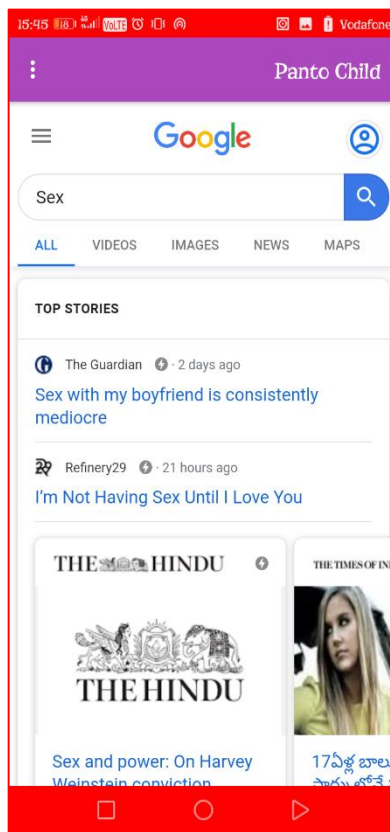
Browser history.

Redirecting link.

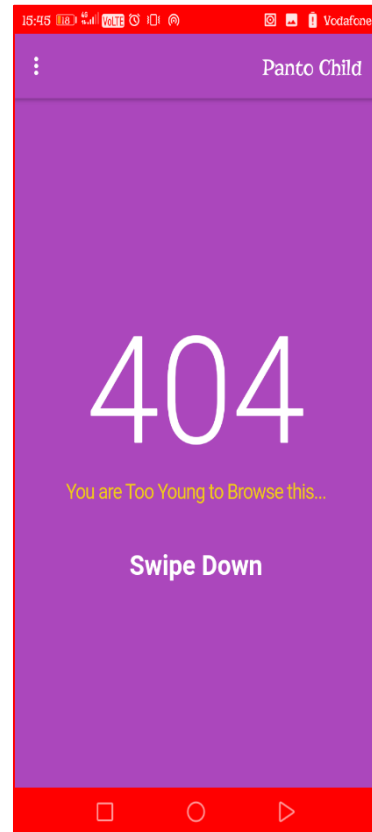
➤ CHILD



Login page of child.



Browser for child.



Error message.