

Aadhar Data Collection Android Application Using Google Firebase Database Technology

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Abstract-As the name Aadhar Data Collection Android Application suggests, this document provides detailed information about the Aadhar Data Collection Android Application (District Aadhar Data Collection Application (Dhar)), the data collected from users and managed by the administrator of the application.

The industry of mobile application is growing rapidly with the new mobile technologies. Which was composed of multiple operating systems such as Symbian OS, Android OS, iOS and Blackberry etc are considered to be the most widely used operating systems and are user friendly mobile platform.

Keywords- Data Collecting Application; Aadhar Data Collection Application; Data Collecting Android Application.

I. INTRODUCTION

Data collection has become the most useful tool for all the emerging organization, the collected data should be managed to perform any kind of operation in it. Our application lets the Admin collect the data and manage it in efficient manner.

Before the emerging of IT technologies, the data is collected in manual way which is difficult to manage by any organization, So to solve the problem of our organization we are developing the Application known as Aadhar Data Collection Application, which lets the organization to collect the data via a Android application and manage it to perform some specific task which can be seen by the Admin and from that data the Admin can able to make many types of excel formats which can be used by them for government use.

There are some Applications which are related to our project:-

- Pendragon Form
- KoBoToolbox
- Jotform
- Smartsheet

II. RELATED WORKS

There are several studies which has been conducted about android data collection application and there are some similar developed application. We have to tried to use new technology with the available technology.

Related Works and Issues are Categorized into two groups:-

Layout issues: Due to differences in the initial appearance of the app layout on smart phones, it is immediately visible to users. These issues may be due to different placement,

size, visibility, or general appearance of elements on the layout.

Functionality Issues: These issues are related to how the application functions/behaves and how it runs on different smart phones. These issues can limit how a user can interact with an application, depending on which smart phone the user is using.

II.1 COMPARISION WITH THE RELATED WORKS:-

Firstly we will compare our application with the Pendragon Forms which is similar to our work:

Pendragon Forms:-

Pendragon Forms is a robust form designer and data collection Application. With the help of Pendragon form we can able to create different types of forms without any coding.

Any organization can able to use Pendragon Form by downloading it from the Play Store and we can also able to use it as a web application. Pendragon Form has the capability to design different types of forms without any coding.

- Pendragon form can be used by any organization, organizations can able to download or use web application and can use it easily.
- With the help of Pendragon Form organization can able to design any type of Form as they required.
- With the use of Pendragon Form any organization can able to store its data remotely.

KoBoToolbox:-

KoBoToolbox is an free an open source software which can be used by any organization to collect the its Data.

- KoBoToolbox works on both online and offline mode.

- KoBoToolbox can able to store the data in different types of Forms and can able to create different types of reports in it.
- The reported designed in KoBoToolbox can be exported with its tool which can be used to export the data in the choice of organizations need.

Jotform:-

Jotform is the paid software which can be used by the organization with the facility of creating forms, submission of forms, counting of forms, viewing forms, storing form but this all facility can be accessed only by the paid user. Paid Jotform provides more secure facility to the organizations.

It can also be used free but with limited resources.[2]

Aadhar Data Collection Android Application:-

Aadhar Dhar application is designed for a specific task to collect data and manage from different Aadhar Centre located across the district. This Application is not for public user. It can be only used by Authenticated User which is under E-Governance Dhar. Some of the functions of Aadhar Data Collection Android Application are as follows:-

- It is an Application Developed to digitalize the manual work E-Governance Society (DHAR).
- Easy to collect the Data from every block of district.
- Provides an easy User Interface.
- Helps to E-Governance Society (DHAR) for fast payment clearance.

III. NATIVE APP DEVELOPMENT APPROACH

This white paper introduces a native app improvement format the usage of Android improvement.

Native app improvement is the use of platform-precise programming languages, software development kits, and development environments provided via working machine carriers. this means that in case you plan to have apps for iOS and Android, the ones apps might be evolved one after the other for every platform the use of absolutely exceptional era stacks.

This approach has enormous benefits and is maximum desired by using cell app developers. First, native apps assist all functions to be had on devices well suited with their platform. on the same time, you could create your own user enjoy with native equipment to make every OS consumer sense at domestic. moreover, native apps are extra performant and responsive.

Table 1: Basic toolset for android and iOS development

Functions	Supported By Android	Supported By iOS
Programming Language	Java, Kotlin	Objective-C, Swift
Integrated Development Environment	Android Studio	Xcode
Software Development Kit	Android SDK	iOS SDK

III.1 LAYOUTS

Layouts are the structure of our application or we can say that Layouts are the interface from which user interacts. Layouts can be created by using the hierarchy of elements and views [4].

Views typically draw something for the user to see and interact with. As shown in Figure 1, A View Group is an invisible container that defines a layout structure for Views and other View Groups objects.

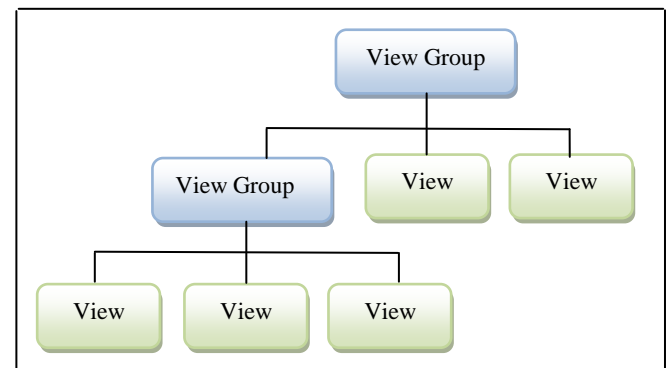


Figure 1 Representation of a View hierarchy that defines a UI layout.

View objects are commonly known as the Widget and can be one of the many subclass such as B. Button or Text.

Layouts are defined in two ways:

Declaring UI elements in XML:

Android have inbuilt vocabulary for XML for View classes and subclasses.

There is also a option of drag and drop interface in Android Studio, which provides the facility of Drag and Drop any widget and use it.

Instantiate layout elements at runtime:

Our app can also create Views and View Groups programmatically and manipulate their properties.

Declaring UI in XML separate our layout design from the code which controls its behavior.

With the use of XML files we can able to create different layouts for different screens and orientations.

Android framework provides flexibility to use either or both these methods to create application Layout.

For example we can declare our apps default layout in XML and can able to change it at the time of runtime.

3.2 XML

Using the xml library of android we can quickly create our layout and screen elements within it similar to creating the html page or a web page with series of nested elements every root file contains a root element which may be view or view group a example of xml is copied here to represent the xml code which contains the textview and image view [3]:

XML Code For a TextView & Button

```
<?xml version="1.0" encoding="utf-8"?>
<ScrollView
xmlns:android="http://schemas.android.com/apk/res/andro
id"
xmlns:app="http://schemas.android.com/apk/res-auto"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:background="@color/white"

tools:context="com.egov.aadhar_dhar.spalsh_screen.Welc
ome">
<androidx.constraintlayout.widget.ConstraintLayout
android:layout_width="match_parent"
android:layout_height="wrap_content">

<ImageView
android:id="@+id/imageView"
android:layout_width="0dp"
android:layout_height="150dp"
android:layout_marginStart="8dp"
android:layout_marginLeft="8dp"
android:layout_marginEnd="8dp"
android:layout_marginRight="8dp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:srcCompat="@drawable/welcome_image02" />

<TextView
android:id="@+id/textView_to"
android:layout_width="40dp"
android:layout_height="wrap_content"
android:layout_marginTop="120dp"
android:background="@color/black"
android:fontFamily="@font/playball"
android:gravity="center"
android:text="@string/to"
android:textAlignment="center"
android:textColor="@color/white"
android:textSize="20sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

</ScrollView>
```

IV. RESEARCH METHODOLOGY

This examine employed an inductive research method, starting with the collection of records and commentary of person cases, thru to the era or derivation of wellknown ideas and theories. The technique of conducting this studies consists of the following activities:

1. **Records collection:** performed face-to-face surveys via interviewing cellular app users. His forty four one-of-a-kind cell apps utilized in unique social and marketplace sectors were examined. Sectors protected include education, banking, marketing, telecommunications, management, disability, transportation and restaurants. The range of this utility is suggested to explore one-of-a-kind actual needs of the cutting-edge marketplace. Interview questions are designed to discover the form of utility, size of the improvement team, users of the app, and selected development method, and give an explanation for the blessings of that desire.

2. **Facts examine:** information evaluation We analyzed survey records to discover the maximum famous cell app engineering in use on the market nowadays. Qualitative analysis changed into used to research the gathered records

3. **Guidelines:** a hard and fast of guidelines has been proposed for cell app developers inside the Omani market. This must help you choose the maximum suitable approach for your goal marketplace zone. [4].

V. ANALYSIS

This have a look at examines the maximum popular cellular app development procedures followed inside the marketplace nowadays those improvement strategies consist of waterfall agile spiral and prototype strategies our studies begins with direct interviews with cell software developers to behavior market studies the range of cell apps have to assist you explore and observe the distinct needs of various marketplace organizations today goal sectors include social services consisting of education banking marketing social communications management incapacity apps transportation and restaurants.

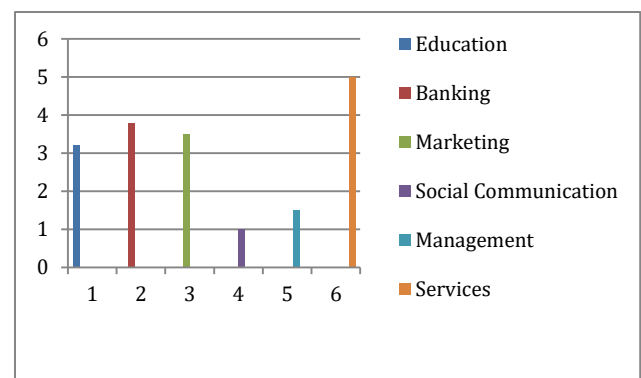


Figure 2: Mobile application types investigated in this survey

An analysis conducted inside the market has proven that the number of customers of Android programs is increasing in the region of services. In other phrases, the company is presently developing each day. So proprietors can have all of the facts they want and employer smooth in their hands, or say on their Android smartphones. There are approaches to get data about your machine, however you cannot take your gadget with you wherever you move, so that you want an Android cellphone utility on the way to come up with all of the information you need at all times.

There is a great example of a stay digital camera tracing application that makes live photos of organizations, houses, places of work, etc. to be had to users always. those cameras are referred to as IP cameras that can be installation for live recording on your Android phone.

After reading the survey information shown in determine five.2, it become decided that the Agile approach became the maximum preferred and to be had technique for cell app development. The outcomes also showed that more than 50% of the mobile apps in the observe followed agile methodologies. that is because the Agile technique ensures clear conversation channels between developers and clients. This type of conversation is crucial in an industry characterised with the aid of handling dynamic, aggressive and uncertain environments. Agile methodologies therefore help builders when consumer necessities are incomplete, stakeholder involvement is needed, or improvement lifecycles and budgets are tight. From this we are able to finish that the Agile approach is a natural in shape for cell app improvement.

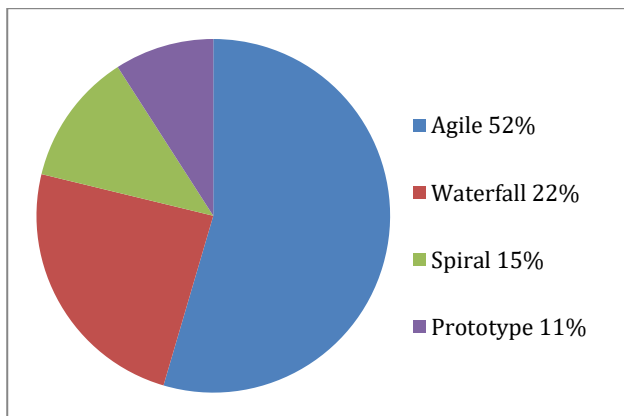


Figure 3: Survey on mobile application development methodologies

Agile improvement technique refers to an iterative incremental technique in which self-organizing agencies work together to broaden software the time period agile turned into added in his nineteen nineties and refers to the strength of production systems the agile manifesto is a proper confirmation of four key value and 12 thoughts imposing these key value and concepts in cellular software development ensures proper interplay among builders and customers allowing clients to be worried inside the design and improvement levels and the following going for walks software program application supplied this permits each builders and clients to effectively respond to modifications from a development attitude agile methodologies must make sure patron satisfaction from the start popularity of converting requirements collaboration amongst builders and clients consistent channels for organization communication and simplification of the development manner.[5]

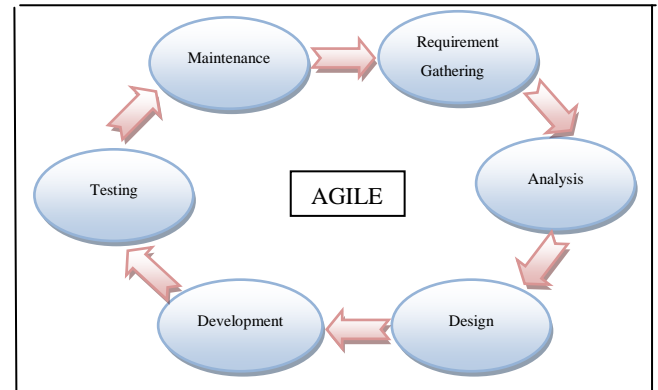


Figure 4: Agile model development phases

The research also touches on Scrum, XP, Lean, DSDM, as well as several Agile engineering models. Agile manifesto requirements are: -

- **People and Interaction** - Initiative and motivation are essential to Agile improvement, as is interaction, including colocation and pair programming.
 - **Software Program Program in Motion** - Software Program Application Demonstration Software in Motion is considered a great way to talk to customers and understand what they want, rather than relying honestly on documentation. I'm here.
 - **Engaging with Consumers** – Due to various factors, it is not always possible to fully understand the requirements at the beginning of a task, making ongoing discussions with customers very important in determining appropriate product requirements. You might.
 - **Change Aware** – Agile Improvement specializes in rapid response to deals and continuous improvement.
- The benefits of the Agile version are: -
- a very realistic method to software program development.
 - inspire teamwork and pass-schooling.
 - capability to broaden and display capability speedy.
 - aid necessities are minimum.
 - suitable for fixed or converting necessities.
 - affords an preliminary partial running solution.
 - A model appropriate for ever-converting environments.
 - minimal guidelines, easy-to-use documentation.
 - permits parallel improvement and deployment within a deliberate normal context.
 - little or no planning required.
 - clean to manipulate.

Negative aspects of the Agile version are: -

- Not appropriate for dealing with complex dependencies.
- Rigorous delivery controls decide scope, features to be introduced, and customizations to fulfill time limits.
- Noticeably depending on purchaser interactions. So if the consumer isn't always clean, the group may be on the incorrect track.
- Very individual based as the documentation generated is minimal.
- Generation transfer to his new crew individuals can be very hard because of loss of documentation.

Table 2: Agile Development Method

Agile Method	Overview	Advantages	Disadvantages
Scrum	A iterative and step-by-step framework in which self-organized development teams work as a unit to achieve a common goal.	<ul style="list-style-type: none"> · Excessive verbal exchange with group members · Client engagement · Self-organizing crew · appreciate team members 	<ul style="list-style-type: none"> · Lack of documentation · Near interplay · Loss of formal management · Expertise and check making plans · Easy to get off course
Lean Development	It Optimize efficiency and minimize the creation of software.	<ul style="list-style-type: none"> · Put off waste · No need to define perfect specifications · Unexpectedly deploy best systems · Optimize commercial enterprise cost introduced 	<ul style="list-style-type: none"> · Tough to broaden the system as a unmarried entity · Loss of clean definition of necessities can result in long implementation times.
Agile Modelling	Agile is an version with model-driven development.	<ul style="list-style-type: none"> · Non-stop attention to suitable technology and properly design. · Speedy and non-stop transport of software program. · Interaction among clients, builders and testers · Next modifications to necessities welcome 	<ul style="list-style-type: none"> · Quit end result unclear · Applicable only to skilled programmers
Adaptive Software Development.	Adaptive exercise makes collaboration and studying as a manner for building complicated systems, repeating cycles of wondering, cooperating, and studying.	<ul style="list-style-type: none"> · Comprehensive User Engagement · Evolving Requirements · Quality Software · Timely Delivery. 	<ul style="list-style-type: none"> · Huge checking out will increase the cost · Initiatives emerge as larger than they have been visualized in the initial tiers.

VI. RECOMMENDATIONS

Another aim of this studies take a look at is to provide a fixed of guidelines for cell app developers inside the market. those pointers are intended to assist mobile utility builders choose the high-quality layout approach for his or her goal market zone. based on statistics evaluation results, it's far recommended that implementing Agile technique is the high-quality for cell app improvement. furthermore, the outcomes show that extra than 50% of his cellular apps on this look at use Agile technique, which is taken into consideration best exercise for mobile app developers. i was. Agile strategies are suitable for small teams, small development cycles, unexpectedly converting necessities, and demands for continuous software program integration and speedy software program transport. however, selections about selecting the ideal improvement approach ought to be made on a case-by way of-case foundation. A business enterprise's very own culture and business enterprise will decide which agile approach is appropriate, or it'll be primarily based on the complexity of the project and the size of the team [6].

VII. CONCLUSION

This article introduces evaluates and compares four app solutions for collecting data from mobile devices for effective comparison we decided to collect and select documentation on each of these solutions go through the data collection process from form creation to data visualization and test each one therefore there is no better software solution in all respects and under all circumstances each case should be considered according to

the users needs and circumstances future work add other comparison indicators to the screenshots to make the approach more recognizable and use the same approach for application development

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