Android Vendor Training

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ABSTRACT

Vendors of the start-up need an application which helps them develop new hard and soft skills in order to improve their service delivery. The main objective of this app is to create an encyclopedic data for technicians which would contain a large number of skill enhancing tools. A technician who uses the app would be able to learn about the different tasks he has to perform and enhance his soft as well as hard skills. So objective of our android application is to create an android application for vendors which would contain a large number of skill enhancing tools.

Keywords

Android, Apriori, Technician, Training, Vendor.

1. INTRODUCTION

Smart phones are more common than computers today. Almost everyone in the world makes regular use of smart phones in their day to day lives. People can get a lot of different benefits from smart phones and that too in a very portable manner. The recent demand in the android application market is for professional consumer service platform that provides you hassle free, punctual and transparent utility services at your doorstep. The project focuses on developing an android for connecting household services providers vendors to enhance their educational skill, so that the household services seekers get the best service by the respective companies. So the main objective of our android application is to create an encyclopedia for vendors which would contain a large number of skill enhancing tools.

2. PROBLEM DEFINITION

Technicians employed by the startup need an app which would help them to learn new skills while improving their existing skills. It is a new start up which aims at providing technicians to house hold in the fastest possible way by making it easier for the technicians as well as the clients to connect with each other. A technician who uses the app would be able to learn about the different tasks he has to perform. It will be easier to train technicians with the help of the application through visual representations. Everything the technicians need to learn will be present at their fingertips. The startup aspires to provide vocational training in all women centered services like house-keeping, beauticians, chef etc. and then create a marketplace for discovery of these services by end users. The project focuses on developing an android for connecting household services providers vendors to enhance their educational skill, so that the household services seekers get the best service by the respective companies.

3. LITERATURE SURVEY

The main objective of this project is to create an encyclopedic data for technicians which would contain a large number of skill enhancing tools. A technician who uses the android app would be able to learn about the different tasks he has to perform and enhance his soft as well as hard skills. Android Studio is an integrated development environment (IDE) for developing for the Android platform. It was announced on May 16, 2013 at the Google I/O conference by Google's Product Manager, Katherine Chou. Android Studio is freely available under the Apache License 2.0. Android Studio's first stable build was released in December 2014, starting from version 1.0. Based on JetBrains' IntelliJ IDEA software, Android Studio is designed specifically for Android development

3.1 Doormint

Doormit that was launched in January 2015, is a start-up similar to the one we are working with. It has a vision to become a one-stop solution for hyper local consumer services. Based in Chandivali, Mumbai, Doormint provides hassle-free, punctual and transparent utility consumer services at the doorstep. Its current services include on-demand electrician, plumber, carpenter, electronics appliance repair and pest control. By integrating latest technology with operations, Doormint minimises customer effort and delivers a delightful and safe customer experience.[1]

3.2 Zimmber

Zimmber provides the best handyman services. It provides various services which include electrical services that takes care of any electrical installation or repairs, plumbing services, AC services that include air conditioner services and repairs, house painting for that beautiful abode look and carpentry work of the finest quality by the best carpenters in Mumbai. Customer satisfaction is our priority. We provide services at a competitive pricing, full commitment and in the smoothest way possible.[2]

3.3 Apriori Algorithm

Apriori is an algorithm for frequent item set mining and association rule learning over transactional databases. It proceeds by identifying the frequent individual items in the database and extending them to larger and larger item sets as long as those item sets appear sufficiently often in the database. The frequent item sets determined by Apriori can be used to determine association rules which highlight general trends in the database: this has applications in domains such

as market basket analysis. Apriori uses a "bottom up" approach, where frequent subsets are extended one item at a time (a step known as candidate generation), and groups of candidates are tested against the data. The algorithm terminates when no further successful extensions are found. Apriori uses breadth-first search and a Hash tree structure to count candidate item sets efficiently. It generates candidate item sets of length from item sets of length . Then it prunes the candidates which have an infrequent sub pattern. According to the downward closure lemma, the candidate set contains all frequent -length item sets. After that, it scans the transaction database to determine frequent item sets among the candidates.

4. DATA FLOW DIAGRAM

A DFD is often used as a preliminary step to create an overview of the system, which can later be elaborated. DFDs can also be used for the visualization of data processing.
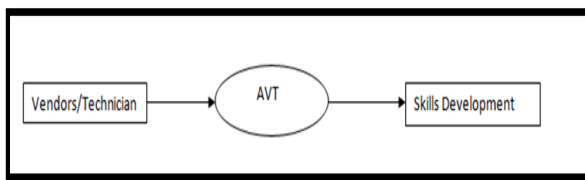

Fig 4.1 Level 0

This DFD level 0 shows the input module vendor where he/she just has to use the application AVT to develop their skills.
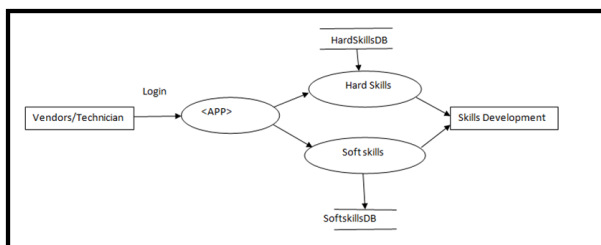

Fig 4.2 Level 1

This DFD Level 1 elaborates the other details required by the application that the vendor has to register if he/she is a new user. After signing up for the application, the vendor can access any skill development area.
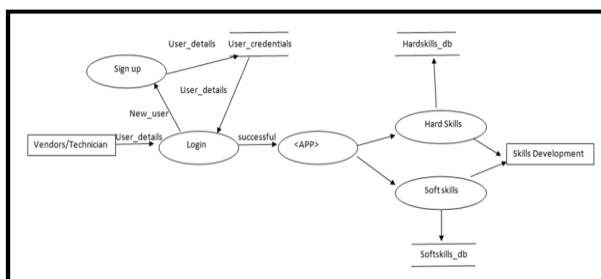

Fig 4.3 Level 2

This DFD Level 2 elaborates the other details required by the application that the vendor has to login directly if he/she is a registered user. If he/she is not a registered user then he has to go through all the steps as mentioned in DFD Level 0 diagram. After successfully signing up for the app, the vendor is now allowed to access any skill development area. As the vendor selects the skill area, the database is made available of that particular skill to the application.

5. APRIORI ALGORITHM

Association rule mining is a classic algorithm used in data mining for learning association rules and it has several practical applications. Association analysis is applicable in all the major application domains such as bioinformatics, geo informatics, data mining, web mining, medical diagnosis and scientific data analysis. This is one of the data mining algorithms that we are going to use in our application development. [3] We would use this algorithm to find an association between the technicians (maid, plumber, etc) and the requirement of the organization. These associations are referred to as positive associations. However, valuable information can be mined with the help of negative associations. The organization is going to provide us with database or data warehouse that stores large amount of records of the technicians that are collected from different locations. The overhead in integrating the data sources will be too high so we will use mining association rule in a single large database that would require less processing power. Due to property of distributed environments, conventional technology used for centralized data mining is no longer suitable for new systems. Grid service implements Apriori algorithm in parallel and distributed manner.

Apriori algorithm is executed on multiple grid nodes in parallel. Distributed data mining algorithms optimize the exchange of data needed to develop global knowledge models based on concurrent mining of remote data sets. Fast Distributed Mining (FDM) Algorithm is implemented on grid network. In each grid node, FDM finds the local support counts and prunes all infrequent item sets. After completing local pruning, each grid node broadcasts messages containing all the remaining candidate sets to all other grid nodes to request their support counts. It then decides whether large itemsets are globally frequent and generates the candidate itemsets from those globally frequent itemsets. The FDM communication complexity is

$$O(|Cp| * n),$$

where |Cp| and n are large itemsets and the number of sites

The three basic operations used by the genetic algorithm are selection, crossover and mutation. The selection operation is used to select individual items from organization's database. This is usually done by applying basic criteria for example: the maid must have 5 years of experience in cleaning house.

These values are arranged in descending order and accumulated from which one value is chosen. The crossover operation refers to the process of taking more than one parent solution and producing a child solution from them.

Example: Once the database is sorted according to the basic criteria, we must be apple to eliminate all the data that does not satisfy the condition and then select one solution that completely satisfies the criteria and make it as a parent solution. On the basis of the parent solution, the other datasets must be selected.

Finally, the mutation operation maintains genetic diversity from one generation of a database of the genetic algorithm to the next. In mutation, there is a possibility that the solution might change entirely from the previous solution. This helps prevent the database from stagnating at any local optima. Mutation occurs during evolution according to a user-definable mutation probability.

Thus, applying these basic operations of genetic algorithm can result in a better solution.

5.1 Implementation

The frequent item sets generated by Apriori algorithm are optimized using Genetic Algorithm as follows:

Step 1: Begin

Step 2: Read the sample record file, which fits in the memory (provided by the company)

Step 3: Apply Apriori algorithm on the sample data by setting the support and confidence values to generate the sets of requent item sets

Step 4: Apply selection method of genetic algorithm to this item set collection to select two technicians.

Step 5: Apply crossover and mutation on selected item sets to find association rules.

Step 6: Repeat the steps 3-5 till desired number of generations is obtained.

Step 7: End

5.2 Improved Approaches

In order to obtain a set of improvements to a given development methodology, one must first analyze the key method characteristics that have yielded successful results in previous projects. For mobile application development methods, key success characteristics are identified in (Rahimian & Ramsin, 2008). These are agility of the approach, market consciousness, software product line support, architecture-based development, support for reusability, inclusion of review and learning sessions, and early specification of physical architecture. Some of these key features can already be found in the Mobile-D method (agility, early specification of physical architecture, architecture-based development, and review and learning sessions); however, the method could be improved if more of these key success features could be integrated.[4]

The following list represents an adapted prioritization of traits for successful mobile application development methodologies.

• Agility
• Market consciousness
• Early specification of physical architecture
• End-user feedback support
• Software product line support
• Reusability support
• Architecture-based development
• Review and learning sessions

6. OUTCOMES

• Daily use of the application will help vendors to develop their skills.

• It will solve a major problem for the startup which is finding trained professionals.

• The startup can easily hire untrained professionals and train them with the help of the application.

• The organization will be able to actively pursue continuous improvement.

• Continuous improvement: This expected outcome requires that: The organization actively pursues continuous improvement.

• Regulatory compliance: This expected outcome requires that: The organization's management has systems in place to identify and ensure compliance with all relevant legislation, regulatory requirements, and professional standards.

7. CONCLUSION

The recent demand in the android application market is for professional consumer service platform that provides you hassle free, punctual and transparent utility services at your doorstep. Taking this demand into consideration, a start-up named Urbanity Multisolutions Private Limited (brand name DIDI) in the vocational education and service delivery space aspires to provide vocational training in all women centered services like house-keeping, beauticians, chef etc. and then create a marketplace for discovery of these services by end users.

By Using Java - Android Programming Language in an Integrated Development Environment we have implemented an Android based application for Vendor Training for DIDI. This application was implemented using multi-language programming IDE Eclipse with database connection using SQLite which uses Android device's internal or external storage for saving data. The application would serve as a handy tool for making sure that the technicians can learn new skills while enhancing existing skills.

8. REFERENCES

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