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| **TITLE** | Context management in smart phones |
| **PROBLEM STATEMENT / DEFINITION** | Write a program to perform profile translation based proactive adaptation using context management in smart phones. |
| **OBJECTIVE** | * Automatically generate users profile according to sensors using machine learning approach. * Keep users full profile in user domain, resulting into centralizing or exchanging the profile information with increase in the consistency of profile information. |
| **S/W PACKAGES AND**  **HARDWARE APPARATUS USED** | 1. Operating System : Latest version of 64 –Bit operating systems open source Fedora 20 or higher equivalent or Windows 8 with Multicore CPU equivalent to Intel i5 / 7 generation onwards 2. Debain based OS ( Ubuntu 13.04 ) , g ++ , Python 2.7 3. Emulator 4. Programming Tools :**The Android Software Development Kit (or SDK) Eclipse/Android Studio** ,Microsoft® Windows® 8/7/Vista/2003 (32 or 64-bit)2 GB RAM minimum, 4 GB RAM recommended,400 MB hard disk space At least 1 GB for Android SDK, emulator system images, and caches1280 x 800 minimum screen resolution. Java Development Kit (JDK) 7 |
| **REFERENCES** | 1. <http://www.researchgate.net/publication/261150285_Proposed_Profile_Translation_based_Proactive_Adaptation_using_Context_Management_(PTPACM)_in_Smartphones> 2. http://[www.python.org/download](http://www.python.org/download) ( suitable installation for Windows 8 along with IDLE editor ) |
| **STEPS** | Refer to theory, algorithm, test input, test output |
| **INSTRUCTIONS FOR**  **WRITING JOURNAL** | 1. Date 2. Assignment no. 3. Problem definition 4. Learning objective 5. Learning outcome 6. Related Mathematics 7. State transition diagram 8. Concepts related Theory 9. Program code with proper documentation. 10. Output of program. 11. Conclusion and applications (the verification and testing of outcomes) |

**Assignment No. A2**

* **Problem Statement**

Write a program to perform profile translation based proactive adaptation using context management in smart phones.

* **Prerequisites**
* Object oriented programming features.
* Understanding SDK Eclipse IDE for Android
* **Learning Objectives**
* Automatically generate users profile according to sensors using machine learning approach.
* Keep users full profile in user domain, resulting into centralizing or exchanging the profile information with increase in the consistency of profile information.
* **Learning Outcome**
* After successfully completing this assignment, you should be able to understand & demonstrate by implementing email header analysis
* **Concepts related Theory**

Mobile technology and Internet is becoming an integral part of our daily life. Various transactions like shopping, ticket booking and banking transactions have been done on the fly. The technology like Smartphone adds portability for these activities. To manage information and applications on Smartphone, user must provide credentials or profiles to service provider with their details filled by logging onto different websites. To this purpose, user's profile resides in control of multiple service providers. Due to this, duplication of data occurs which will leads to a data inconsistency. To overcome these issues, this paper proposes Profile Translation based Proactive Adaption using Context Management (PTPACM) in Smartphones which automatically generates user's profile according to the scenarios. Proposed system allows keeping user's full profile in user domain resulting into centralizing or exchanging the profile information with increase in the consistency of profile information. This paper presents the layered architecture for PTPACM with Context Awareness Layer, Proactive Analyzer Layer and Profile Translation in a system. This paper also presents probabilistic representation of PTPACM as well as pseudo codes for different operations in the functional blocks of presented architecture.



Figure: Layered Architecture Profile Translation Based Proactive Adaption Using Context Management (PTPACM)

* **Context Awareness Layer**

Context is taken as main input to the system. The basic task of context handler is to recognize the current context in which user is operating. Recognition of context can be done by checking stored context. Sometimes it may happen that the user is using that app first time or navigating the new web site. Now, if user is in new context then the whole data is passed to Context Predictor. Context Predictor checks if this current context needs the profile to be generated. If require then this context is passed to Context Storage Manager. Context Storage Manager stores new context or updates previous data according to the situation. This way, first layer recognizes the context that is nothing but the situation awareness and suggests if current context is appropriate for profile translation. And finally forwards this contextual information to the next layer.

* **Proactive Analyzer Layer**

It takes the contextual information which is provided by upper layer. The Requirement Manager in this layer will gather all the required information of the profile. This is done without user’s request which is nothing but extracting the requirements from the context proactively. Here, best results can be achieved by properly examining the current context and gathering results accordingly. After this accumulation, the data is pushed to the next layer.

* **Profile Translation**

The layer takes the requirements from second layer via Retrieve Manager. It will check if those user requirements are fulfilled by the database. If the user requirements are satisfied then it creates the abstract view of profile. The layer will pass this abstract view to the Display Manager from Proactive Analyzer Layer. It will display the view proactively.

* **Profile Translation in Context Aware Proactive System**

With the increasing use of web apps present in Smartphone’s it has become tedious job for the users to provide the detailed profile to service provider. In current scenario the user’s profile is maintained by service providers. When the particular website requires the information of user, whole profile is provided by the user. But this is actually not relevant because all the information is not needed. Accordingly, only the specified information of the usage should be provided. So here we propose a system which is android based and generates specific profile for specific website. As if the website relates to shopping, the profile would contain only the name, postal address and contact or online reservation will require name, age etc. So according to the requirements, different profiles of user are generated. These will be the abstract views of actual profile of user. And these abstract views are provided to the service provider. Now to recognize what profile is needed by service provider we use the concept of context awareness. Context in our terms can be referred as all the web apps in a Smartphone also all different kinds of websites that user visits through these Apps. Recognizing which website/webapp or which action of user needs generation of such profiles is referred as context awareness. Being context aware, the system recognizes need of an abstract views of profile which is provided proactively i.e. before user requests. When user tries to open an app which requires profile then this will be recognized and while that site loads, profile will be generated automatically. To generate these views proactively we should know the credentials needed for that website. Generating the profile according to the context determined is the foremost task of the application. The personalization of data is to be done at user side itself. The profile database is to be stored in the Smartphone. This is android based context aware proactive system which manages user’s whole profile information and gives abstract view of profile according to the current context requirements. As whole profile information is stored at one place consistency of information will be maintained. Profile of user will be in user’s control and not of service provider. In this way it becomes convenient for user to update his profile. He can update his profile stored in the database and next time when he visits different websites, this updated information will be made available to that website proactively.

* **Principles of PTPACM:**

To manage information and applications on Smartphone, user must provide credentials or profiles to service provider with their details filled by logging onto different websites. User's profile resides in control of multiple service providers. Due to this, duplication of data occurs which will leads to a data inconsistency. Duplication of data occurs which will leads to a data inconsistency.

**Benefits of PTPACM:**

It allows keeping user's full profile in user domain resulting into centralizing or exchanging the profile information with increase in the consistency of profile information.

**Uses of PTPACM:**

* Shopping
* Ticket Booking
* Banking Transactions
* Business Uses
* Personal Uses

### Multi-channel content delivery

Multi-channel content delivery capabilities allow users to manage a central content repository while simultaneously delivering that content to mobile devices such as mobile phones, smartphones, tablets and other mobile devices. Content can be stored in a raw format (such as Microsoft Word, Excel, PowerPoint, PDF, Text, HTML etc.) to which device-specific presentation styles can be applied.

### Content access control

Access control includes authorization, authentication, access approval to each content. In many cases the access control also includes download control, wipe-out for specific user, time specific access. For the authentication, MCM shall have basic authentication which has user ID and password. For higher security many MCM supports IP authentication and mobile device authentication.

### Specialized Templating system

While traditional web content management systems handle templates for only a handful of web browsers, mobile CMS templates must be adapted to the very wide range of target devices with different capacities and limitations. There are two approaches to adapting templates: multi-client and multi-site. The multi-client approach makes it possible to see all versions of a site at the same domain (e.g. sitename.com), and templates are presented based on the device client used for viewing. The multi-site approach displays the mobile site on a targeted sub-domain (e.g. mobile.sitename.com).

### Location-based content delivery

Location-based content delivery provides targeted content, such as information, advertisements, maps, directions, and news, to mobile devices based on current physical location. Currently, GPS (global positioning system) navigation systems offer the most popular [location-based services](https://en.wikipedia.org/wiki/Location-based_service). Navigation systems are specialized systems, but incorporating mobile phone functionality makes greater exploitation of location-aware content delivery possible.

### Examples of Mobile content management systems

GENWI's cloud publishing solution and mobile Content Management System (mCMS) gives publishers an easy way to repurpose their content and create real-time content apps. The startup’s platform provides templates and tools that makes it easy for both small and enterprise publishers to customize both native and HTML5 apps, after which they can deliver their content across those devices without having to make changes to published apps.

In 2012, Solodev launched its mobile content management solution and integrated it with its traditional CMS; thus, enabling enterprises to manage content across multiple online channels (website, mobile site, mobile app, social media app, etc.) while utilizing one single platform for management. Volusia County, Fla., was the first to utilize Solodev's mCMS when it launched a native mobile application that utilized geo-locational data provided by the County to help residents and visitors navigate area beaches.  Solodev's mobile content management solution runs in the cloud or on site.

* **Mathematical Model:**

Let S be the system set:

S= {s, e, X, Y,Fme, DD , N DD ,Fc,Sc}where

s=start state i.e No Values in the database

e=end state i.e.Information t success fully

X=set of inputs

X= {X1}

where

X1 = Details oftheTrain= x1,x2,x3

where,

x1 = Train Number

x2 = From

x3= To

Y=set of outputs

Y = Output set =y1,y2,y3,y4

y1=Train Name.

y2=From.

y3=To.

y4=Train Numb er.

Fme is the set of main functions

Fme = {f 1,f 2,f 3,f 4}

Where,

f 1 = function to add to parameters in database.

f 2 = function to view the database.

f 3 = function to search the entry in the database.

f 4 = function to retrieve the parameter based on the other parameters in database.

DD= Deterministic Data

Particular Train Number retrieved on particular Train Name.

NDD=Non-deterministic data

1) User Input

Sc = success case:

1) All parameters for user profile retrieved suc cessfully for given input

Fc =failure case:

1) Database crashed.

* **Conclusion:**

Thus we have successfully learned to perform profile translation-based proactive adaptation using context management in smart phones and developed the application successfully.