Dashboard Automation for Reporting Indicator

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Dashboard Automation for Reporting Indicator

Major Project

Submitted in partial fulfillment of the requirements

For the degree of

Master of Technology in Information and Network Security

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DECLARATION

This is to certify that,

I, **Mitesh Chavda**, **12MCEI05**, a student of semester IV Master of Technology in Information and Network Security, Nirma University, Ahmedabad , hereby declare that the project work **Dashboard Automation for Reporting Indicator** has been carried out by me under the guidance of Mr. NIrmallya Kar and Miss. Archana Thakur , ST Microelectronics, Greater Noida and Prof. Dhaval Jha, Department of Computer Science and Engineering, Nirma University, Ahmedabad. This Project has been submitted in the partial fulfillment of the requirements for the award of degree Master of Technology (M.Tech.) in Information and Network Security, Nirma University, Ahmedabad during the year 2013 - 2014.

I have not submitted this work in full or part to any other University or Institution for the award of any other degree.

Mitesh Chavda(12MCEI05)

CERTIFICATE

This is to certify that the Major Project entitled **Dashboard Automation for Reporting Indicator** submitted by **Mitesh Chavda(12MCEI05)**, towards the partial fulfillment of the requirements for the degree of Master of Technology in Information and Network Security of Nirma University of Science and Technology, Ahmedabad is the record of work carried out by him under my supervision and guidance. In my opinion, the submitted work has reached a level required for being accepted for examination. The results embodied in this major project, to the best of my knowledge, have not been submitted to any other university or institution for award of any degree or diploma.

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Abstract

In current technology scenario where there are hundreds of skill sets and technology demands, it becomes inherent for an organization to maintain the skill sets of its resource pool in an organized fashion which can aid in the identification of the right resource for the right job. The idea behind an automated dashboard is to aid the managers to manage the resources at their skill level and help aid the people develop their skills by properly aligning them to the project demands. This way the organization can leverage the best out of the people and help develop a skill centric resource pool.

The objective of this document henceforth details the working process of an automated tool with primary objective of maintaining and highlighting the roles and responsibilities of all people under an organizations resource pool. It also summarizes the pre requisites, constraints and the various management oriented reports supported by the design.

The scope of this document extends to the detailed description of the working of the tool including the data extraction and analytics behind the engine. It details the concept, the data flow, technical requirements and the high level design. The technical specifications to the low level of the programming involved have been considered beyond the scope of discussion to maintain the confidentiality and internal property righ ts of the governing organization STM..

Chapter 1

Census Analysis Tool

1.1 Introduction to Census Analysis Tool

Automated Tool is all about analysis of particular organization by the Manager, Supervisor or Admin and to fill some in complete information like Skill profile, Activity, Additional Skill, to update Supervisors details (if required) and to change the status of the records(in active, transfer). Analysis of it can be done using report generation which uses Pivot table so as to analyze things. .

Automated Tool is basically a Tool used to extract information related to a particular team to a particular user logged in (Supervisor, Manager or Admin). Based on his rights he can fill the incomplete information like Activity or Skill profile of his team members.

1.2 Tool Description

This Project was started with reference to other tools like Budget Analysis Tool taking the concept of:

- Authentication of the logged in user
- Retrieving records of a Particular team or organization
- Highlight changes if done any
- Publishing those changes i.e. reflecting those changes into database.

- Database used here is MySQL.
- The tool is connected to the database with the help of web service written in Java.
- With this web service data is serialized in xml form and then deserialized while retrieving in front end coding.
- The Coding of the tool is written in VB (Visual Basic).
- Every button is assigned with some Macro defined by the user.
- A Macro is a series of command and function that are stored in Microsoft visual basic module and can be run whenever you need to perform the task.
- An additional feature is also been implemented in this tool is Census Upload which is accessible to only Admin.
- It is used to upload the new HR data got from the HR team.
- Comparing with Master Database highlighting those records.
- Adding new records which are there in HR Sheet but not in Master Database.
- Inactivating those records which are there in Master Database but not there in HR Sheet.
- Creating some standard rules so that to update the Master Database with the standard value defined and then committing those changes in database.

[5]

1.3 User Classification

- **Supervisor**
  - Can see data of people reporting him
  - Can edit activity , skill, status and comments
  - Reports are customized acc. to his subordinates
- **Team Manager**

- Can see data at team level
- Can edit cost centre and supervisor additionally
- Reports are generated at team level
- Can view changes proposed for Cost Centre and Supervisor

- **Admin**
  - Data view scope is same as manager
  - Can modify Functional group and subgroup
  - Additional reports generated for skill and activity descriptionl
  - Mass upload of census data
  - Compare with HR data
  - Accept or discard changes proposed by Manager and HR data

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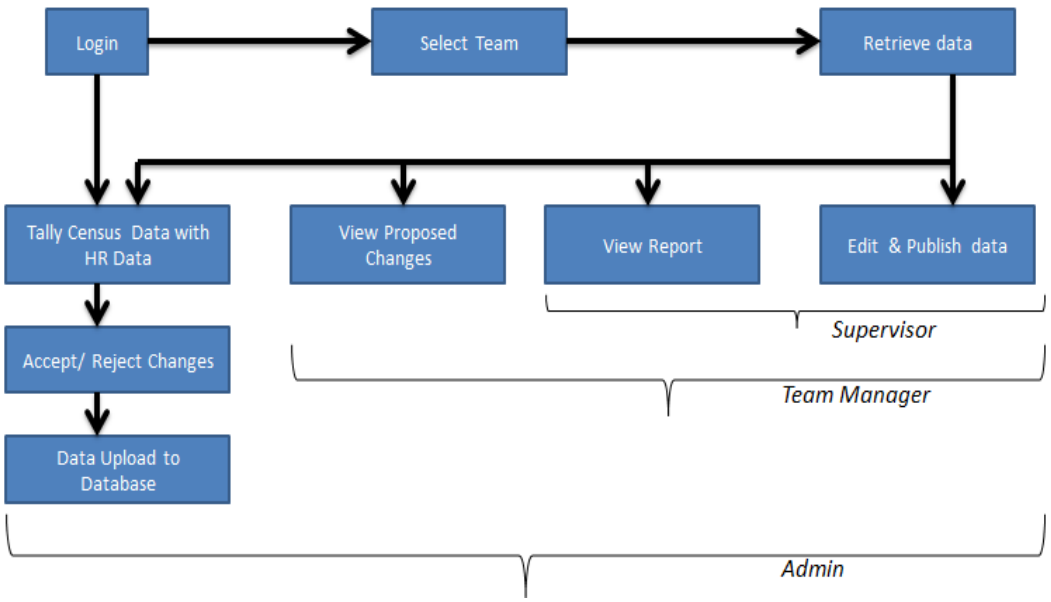

Figure 1.1: USer Classification Flow
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1.4 Development Methodology : AGILE

Agile approach is an option to conventional project management, commonly utilized within programming development. It helps groups react to unpredictability through incremental, iterative work rhythms, known as sprints. Agile approach are an option to waterfall, or conventional successive development.

Agile development procedure gives open doors to evaluate the heading of an undertaking all around the development lifecycle. This is accomplished through customary rhythms of work, known as sprints or cycles, at the end of which groups must present a possibly shippable item augment. By concentrating on the redundancy of abridged work cycles and in addition the utilitarian item they yield, agile system is portrayed as "iterative" and "incremental." In waterfall, development groups just have one opportunity to get every part of a task right. In an agile ideal model, each part of development prerequisites, plan, and so forth is constantly returned to all around the lifecycle. At the point when a group stops and re-assesses the heading of an extend at regular intervals, there's dependably time to control it in an alternate direction.

Figure 1.2: Development Methodology : AGILE
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1.5 Block Diagram of Automated Tool

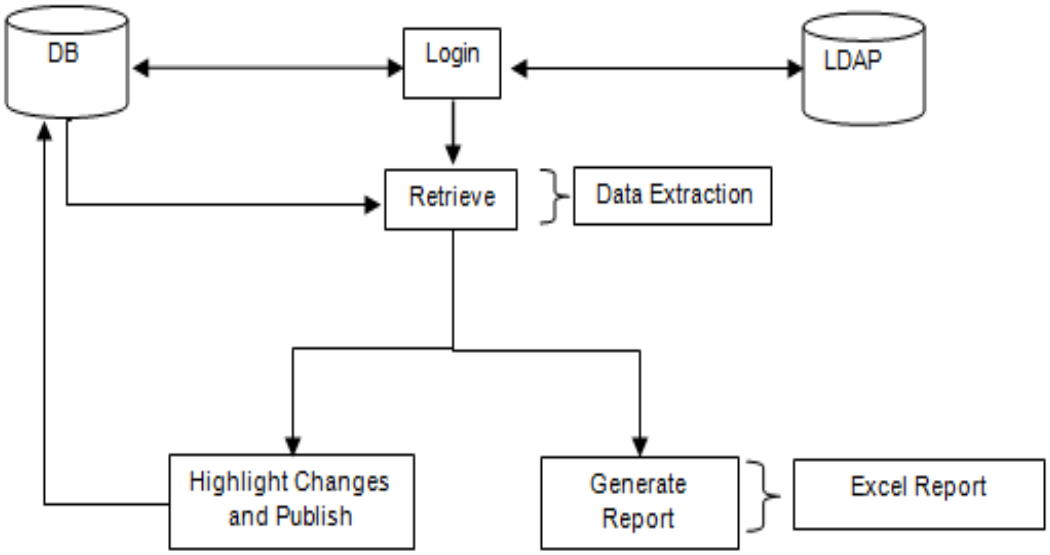

Figure 1.3: Block Diagram of Automated Tool
[5]

Chapter 2

Tool Functionality Description

2.1 Functionality for User

- **Login :**

  This button is used for Authentication of the user i.e. only authenticate user would be allowed to use this tool, normally its the system user name and password.This button is also used to clear the reference sheet and also retrieve the data of reference sheet. It also retrieves the list of Organization combo box. Usually this list is the list of Organization to which the logged in user has rights and also the rights type (i.e. Manager, Supervisor or Admin).

- **Retrive :**

  This button is used to retrieve the data of the main sheet i.e. Census Sheet, data means the list of employees of the Organization selected. User can change only some specific records of his/her team i.e. Activity, Skill Profile, Additional Skills, Supervisor and Cost Centre. Other than these all other columns are read only. This button also enables another sheet named as Tables sheet and retrieve data in this sheet also (This Sheet is used as a reference as all the reference tables data i.e. Activity Description , Skill Profile, Cost Centre, Group, Functional Group and Functional Sub Group etc. data is been retrieved in this sheet.

- **Highlight Changes :**

  This button highlights the cell which user has change; it highlights the cell and also add a comment notifying the user about what was the old value (db value) of the

cell.

- **Publish :**

  This button updates the database with the changed value changed by the user. In case of Supervisor change or Cost Centre change it does not update the main table but another table with the changes of that resource (employee).

- **Advanced Options :**

  This button opens up a form contains two groups, one as Configuration Settings and another as Generate Auto Mail. Under Configuration settings group there are three different buttons.

- **Detail Skill Profiling :**

  It is an acronym to Additional Skill i.e. extra skills which an employee is having other than the skill been defined to him. Additional Skill may be categorized like Software Skill (C, Java etc.)Hardware Skill (VHDL etc.)

  There are different levels defined of additional Skill i.e. from level 1 to level 5 which signifies that Level 1 is for beginners and Level 5 are for Expertise.

  This button is used to add, remove or update the additional skill of the employees of the Organization list selected. Only Manager, Supervisor and Admin have rights to change the Additional Skills.

- **Snap:**

  This button is used to take snap of the Current Sheet so as to keep it for future purpose it takes the snap shot of the Census Sheet and save that Sheet with Current Date and time Stamp name

- **Delete Snap :**

  This button is used to delete the snap shot taken, on clicking this button a form opens up which shows the list of all snaps taken of the Census sheet and user can delete one by one which ever snap shot sheet he wants from the list.

- **Report :**

  This button is used to generate report and based on analysis is done using pivot tables like Additional Skill report which notifies the user to do analysis on his team that which employee has expert in which Additional skill which is beginner in Skill.

- **DRC(Data Reliability Check) :**

  Run DRC is for checking if any record(it can be any employee, sub con, trainee) is having Missing Activity description or any record(only employee) has Missing Skill Profile. It marks the Cells (Activity Description or Skill Profile Cell with Red Color).

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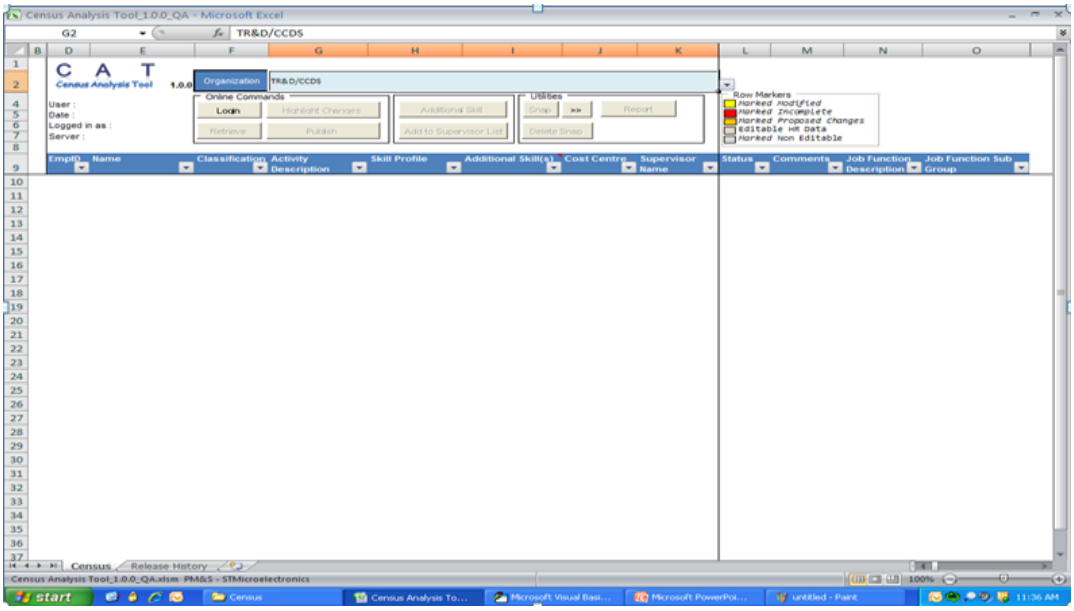

Figure 2.1: Tool FrontEnd
[5]

2.2 Functionality for Admin

- **Retrive Master Table :**

  This button is used to retrieve Master Database and data is populated on Census DB Sheet.

- **Proposed Changes Extraction :**

  This is a checkbox used to enable Proposed Changes Extraction i.e. changes which is done by the user in front sheet (Census Sheet e.g. Supervisor, Cost Centre) but its not reflected in Main table of master database

- **HR Extraction :**

  This is a check box used to enable HR Extraction group box i.e. ImportHRData.

- **Import HR Data :**

  This button is used to upload HR Data from the HR Sheet provided by the HR Team and it will get stored in HR Data sheet.

- **Create Rule :**

  This button will open a new sheet with name as Rule. In this sheet we can make new Rule like for some records if there supervisor details are dummy and the user knows its supervisor details he can click on create Rule and create a rule which will store the information of the record with the value.

- **Execute Rule :**

  This button is used to execute the rules defined in Rule sheet and Updates the Master Database sheet Census DB with the rule sheet. As in below Snap shot Sub cons supervisor were dummy in Master DB so by creating a rule of assigning supervisor to those who have supervisor dummy and executing those rule we get below output.

- **Reference Table Update :**

  This button is used to add, update or delete reference table data. On click of this button a form opens up which contains a combo box and a retrieve button. Combo box contains list of different reference tables (like Activity, Skill, Team, Functional Group, Functional Sub Group, Permission, and Cost Centre, Competence Centre, Group, Job Code, Person Class, Category).

  - **Retrive :**

    This button is to retrieve data of the reference table currently opened as in this case it is for Permission table, If any un committed changes are there user would be prompted for it like this:

  - **Add Record :**

    This button is used to add new record in the reference table in this case it is Permission table, a new row is inserted and is marked with green color.

  - **Highilght Changes :**

    This button is used to notify the user what all changes he/she has done i.e. updating a record (marking row with yellow color and also commenting what

is the dB value), adding a record (marking row with green color), deleting a record (marking row with red color).

- **Mark Delete :**

  This button is used to mark a row for deletion. Row is marked with RED color so as to notify the user that this record is marked for deletion.

- **Mark Undelete :**

  This button is to unmark the row which was previously marked for deletion.

- **Publish :**

  This button will commit all the changes which user has done into the database i.e. Adding, Updating and Deleting of record in Master database.

- **Close:**

  This button is used to close the current and get back to Census DB sheet in this button also if any uncommitted changes are there user will be prompted same as above.

- **Highlight Changes :**

  This button will compare Master Database (Census DB Sheet) and HR Database (HR Data Sheet) and will mark the records which are different with yellow color mark and also mark in HR Sheet with green color those records which are new records which need to be inserted in Master Database.

- **Highlight Inactive :**

  This button is used to mark those records which are in active i.e. its therein Master Database but in HR extraction which the user is uploading does not contain those records. Those records are marked with blue color. item **Unhighlight Cell :**
  This button is used to Unhighlight the selected cell if its highlighted during Highlight changes process, While publishing the updated records only those records would be updated which are marked as highlight i.e. marked with yellow color.

- **Add and Update Record**

  This button is used to add those records which are marked as green in HR Data sheet to Master Database with updating Master Database with reference tables those fields of Master Database which are not there in HR Data sheet like Team,

Charge, and Competence Centre etc. After adding those records it also updates the Master Database sheet Census DB with the changes find with the HR Data Sheet.

- **Publish :**

  This button is used to commit changes in database i.e. updating records which have discrepancies with HR Data, New records which are to be added to the Master database, Inactivating those records which are not there in HR sheet (What this will do is in Database for every record there is one column named as is active it will change the selected records for this column as Inactive of which previously was active And next time when Retrieval happens those records wouldnt be retrieved).

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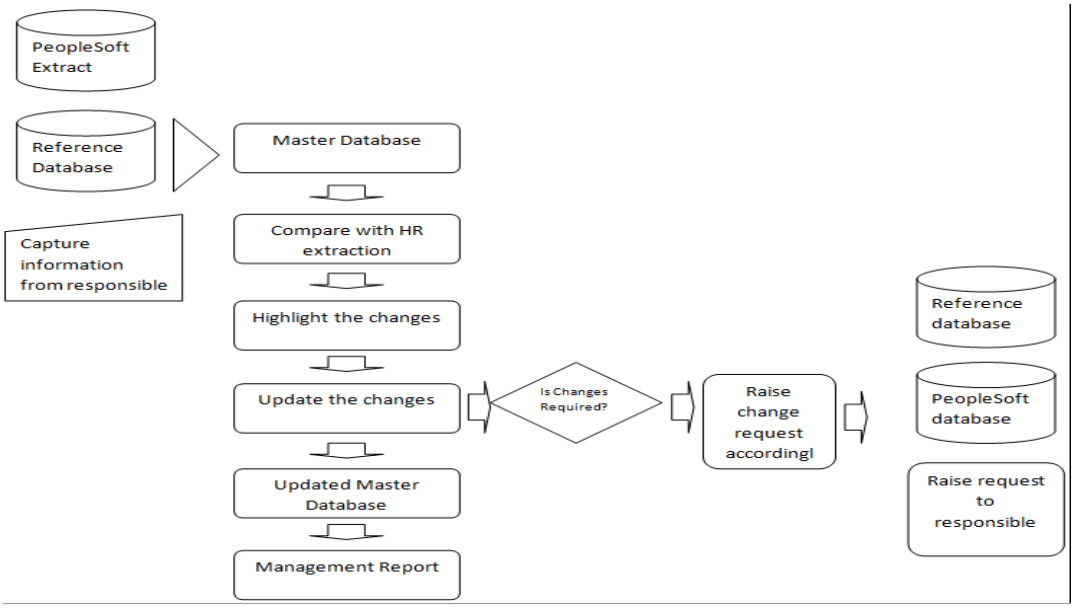

Figure 2.2: Admin Module Flow
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2.3 Reporting Module

This Module is used to generate report and based on analysis is done using pivot tables like Additional Skill report which notifies the user to do analysis on his team that which employee has expert in which Additional skill which is beginner in Skill. Data is dumped for generating report in Data sheet and corresponding to that data reports are refreshed using Pivot. Refresh command.

Different Reports are generated on the bases of different analysis peramaters.

- CCDS Report
- Movment Report
- Competence CentreReport
- Skill Report
- Additional Skill Report
- Activity Report
- Attirition Report

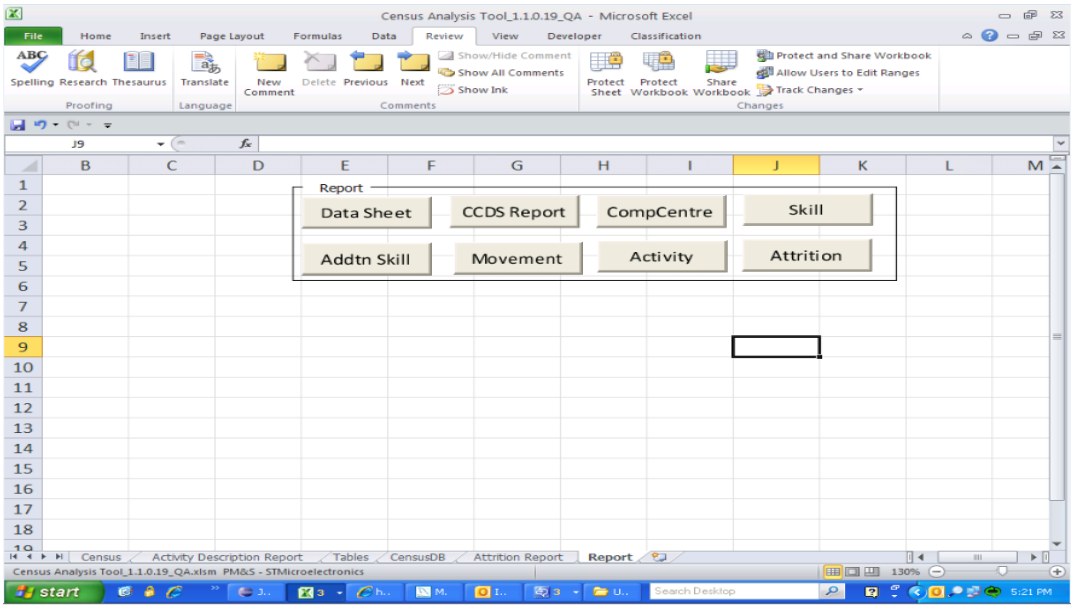

Figure 2.3: Main Report Module
[5]

2.4 Web Service

Web service will be used to connect the databases and data from the databases will be taken to the tools as required. The web service is used as an interface between the Census Tool and the MySQL database. The database for the Census Tool is stored in MySQL. This database has the information of the number of resources namely employees, sub

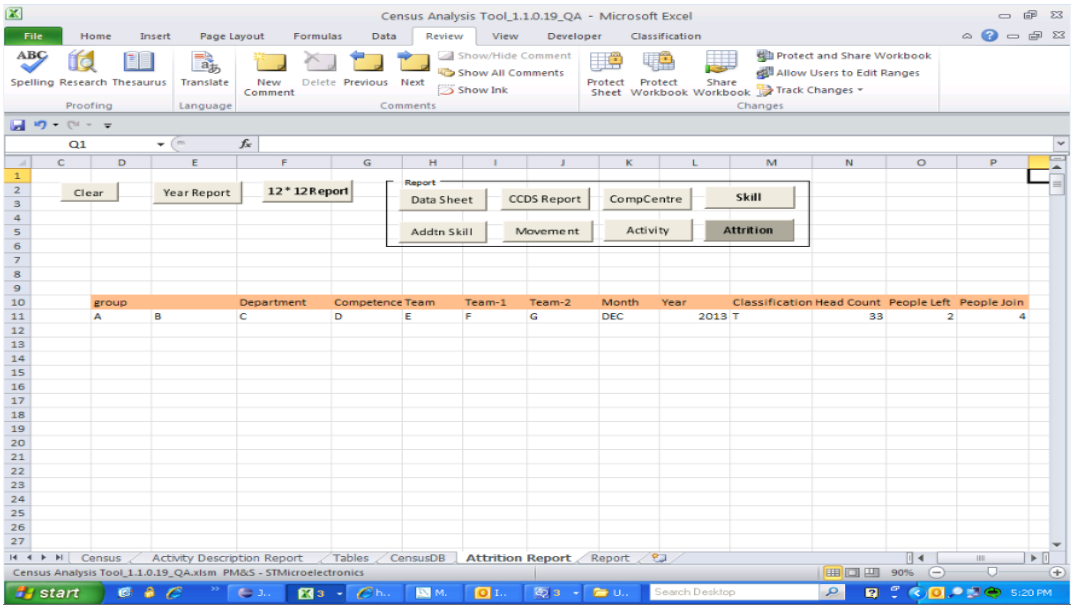

Figure 2.4: Attrition Report
[5]

cons and trainees at different sites working on different projects.

The web service interacts with the database in MySQL and generates an xml file with the corresponding data. The web service has been coded in Java for each table in database there is a corresponding class in Java.

Chapter 3

Time Logging System(TLS)

3.1 Introduction

Time logging system is used to record, analyse and report the time spent by individuals or different teams on tasks. Tasks can be categorized by projects and clients for which staff assigned to work on them. A variety of time logging reports are generated which provide insight into how time is being spent across the organisation, which can be used for analysis and management decision-making.

3.2 Working Flow of Tool

Modules :

- Retrieve :

  -This utilitys basic purpose is to dump data from database to excel sheet.

  -User select different filtering parameters for query where clause, after that based on query parameter web service interact with different tools database joins table data, manipulate data and return data dump to excel sheet.

- Report :

  -Based on web services dumped data, numbers of reports are generated as per users requirement .

  -Reports contain pivot tables and graphical representation of pivot data.

- Generate Report :

  -For user flexibility, this utility directly converts a generated graph report to Microsoft presentation.

- Snap :

  -Basic purpose of this utility is to maintain a history of tool data by storing or deleting a data sheets snap.

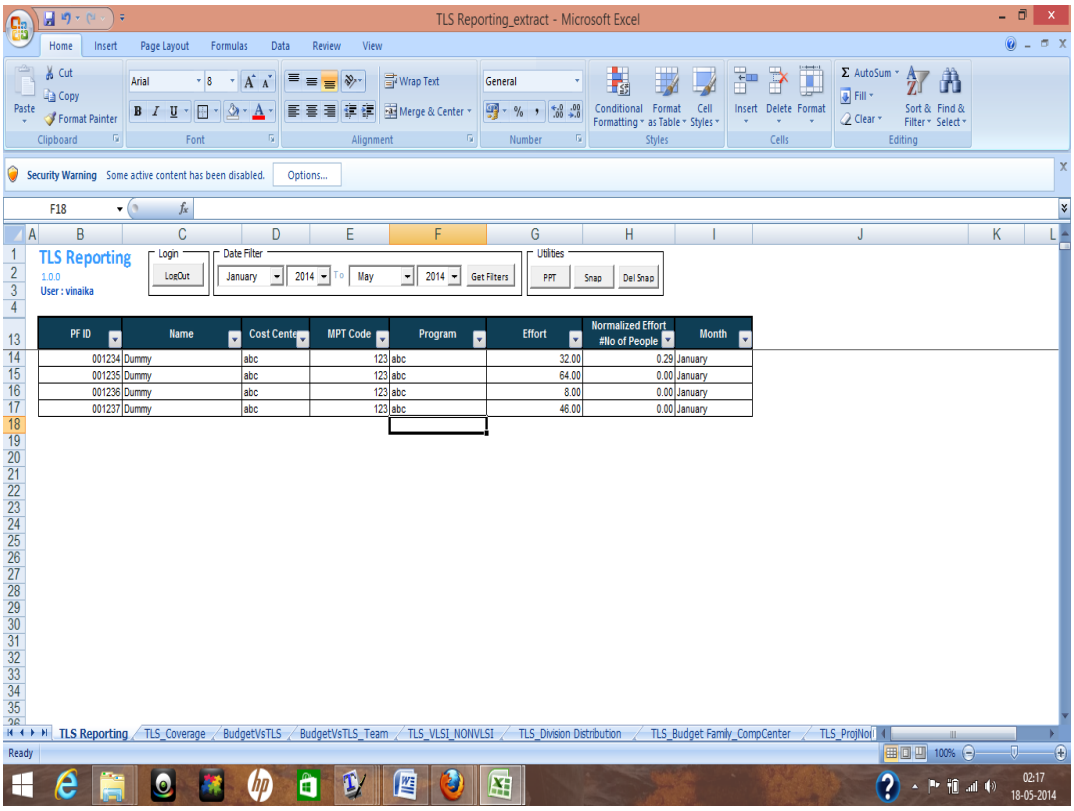

Figure 3.1: TLS Tool
[5]

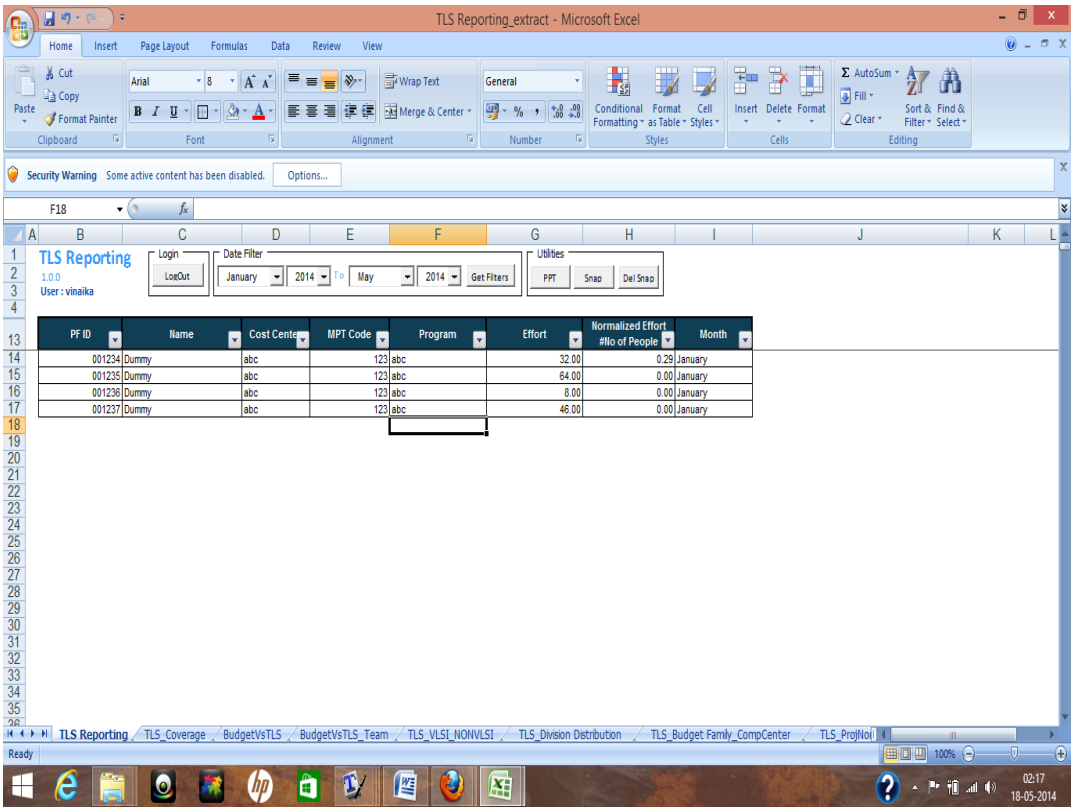

Figure 3.2: TLS Report
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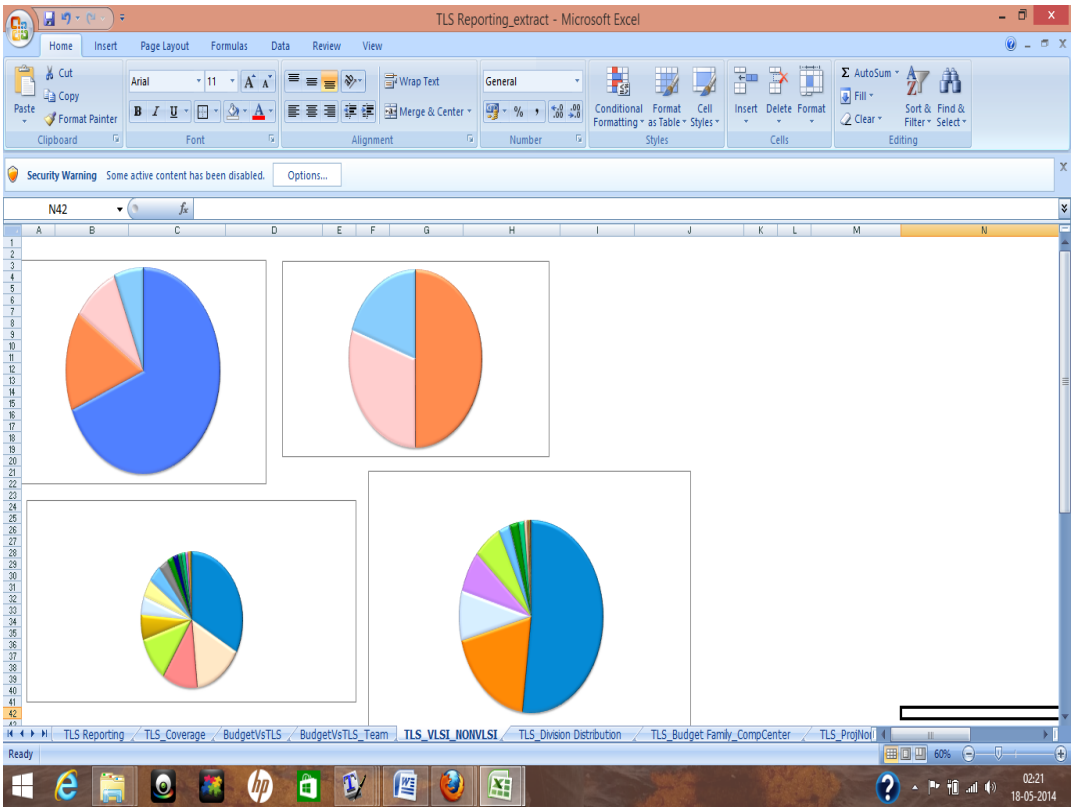

Figure 3.3: TLS Report
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Chapter 4

DataGovApp : Admin Utility

4.1 Introduction

- Its a data governance application for admin utilities for different tools across STM.
- Which integrate all common tables of different tools into one data governance module.
- Also implemented an utility to manage and update this data governance model and also reflect its changes across different tools local schemas.

4.2 Integrated Framework

- **Motivation :**

  Along with Census Analysis Tool, there are other STM internal tools for different purpose like Budget, TravelDB, CAD Usage Tool etc. With each tool separate database schema is used though many of tables are the same for different tools. So any changes in tables lead to change all schemas table accordingly. As such, database management for all tools becomes a difficult.

- **What is Integrated Framework ?**

  Integrated framework module is introduced to solve this problem. Common tables are restructured according to all schemas existing structure as such that all tools can refer a single copy of table. Because shared table is referred by all tools, changes can be easily reflects to them.

- **Implementation :**

  To implement an integrated framework, different tools shared tables like Team Table need to be restructured. Team tables new structure leads a Front End and Web Service to modify accordingly.

4.3 Admin Utility

Any changes in shared data governance table leads changes to other tools linked table. For this purpose admin utility is implemented which retrieve the changes from data governance model and provide utility to change tools internal schema tables.
Major Modules :

- Organization :

  Utility to make changes into data governance team table with functionality of retrieve, update, new and delete the record to database.
  Its also reflect changes to censuss inked table as well.

- Census Admin Module :

  This module is used to create new entries of team supervisor mapping for new team in data governance model. Its also providing the functionality to update the supervisor of existing team as well. Once we update the supervisor its function called another algorithm which hierarchically update the supervisor of all employee with some filter conditions.

- Budget Permission :

  This module is used for CRUD (Create,Read,Update,Delete) function for permission table of budget with some internal filter condition.

- Budget Capacity :

  This module is used for CRUD (Create,Read,Update,Delete) function forcapacity table of budget with some internal filter condition.

- Travel Permission :

  This module is used for CRUD (Create,Read,Update,Delete) function for user permission and team permission tables of travel with some internal filter condition.

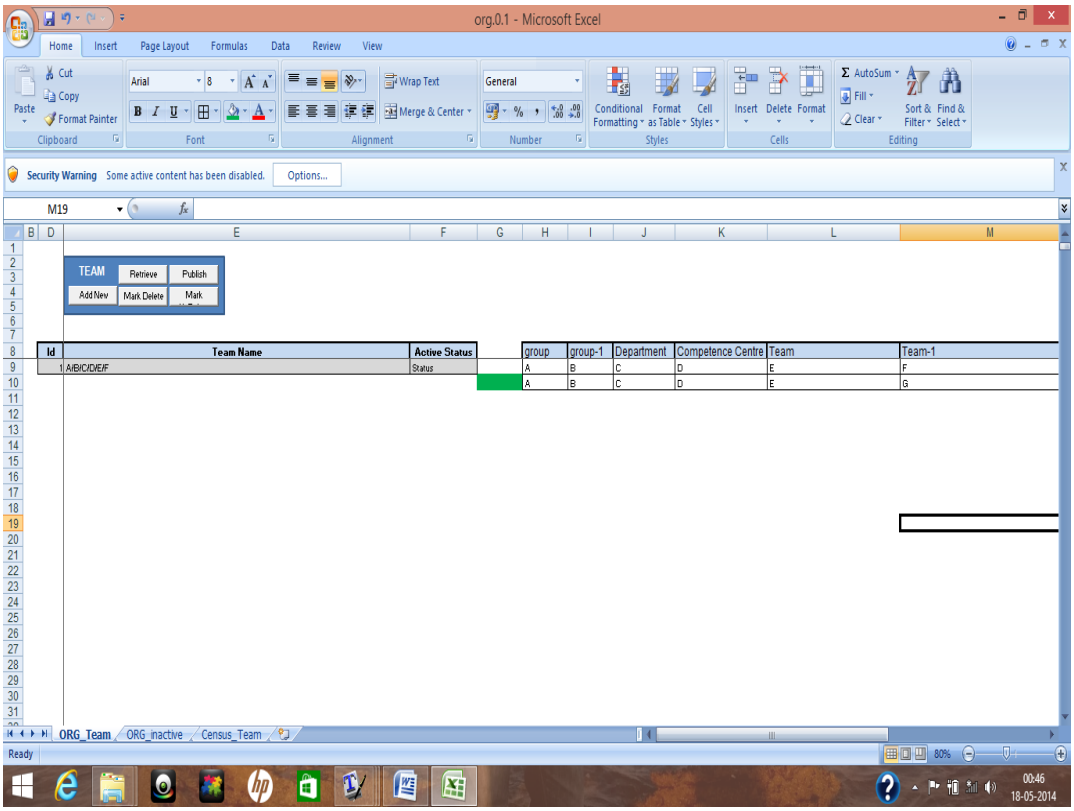

Figure 4.1: Organization Admin Module
[5]

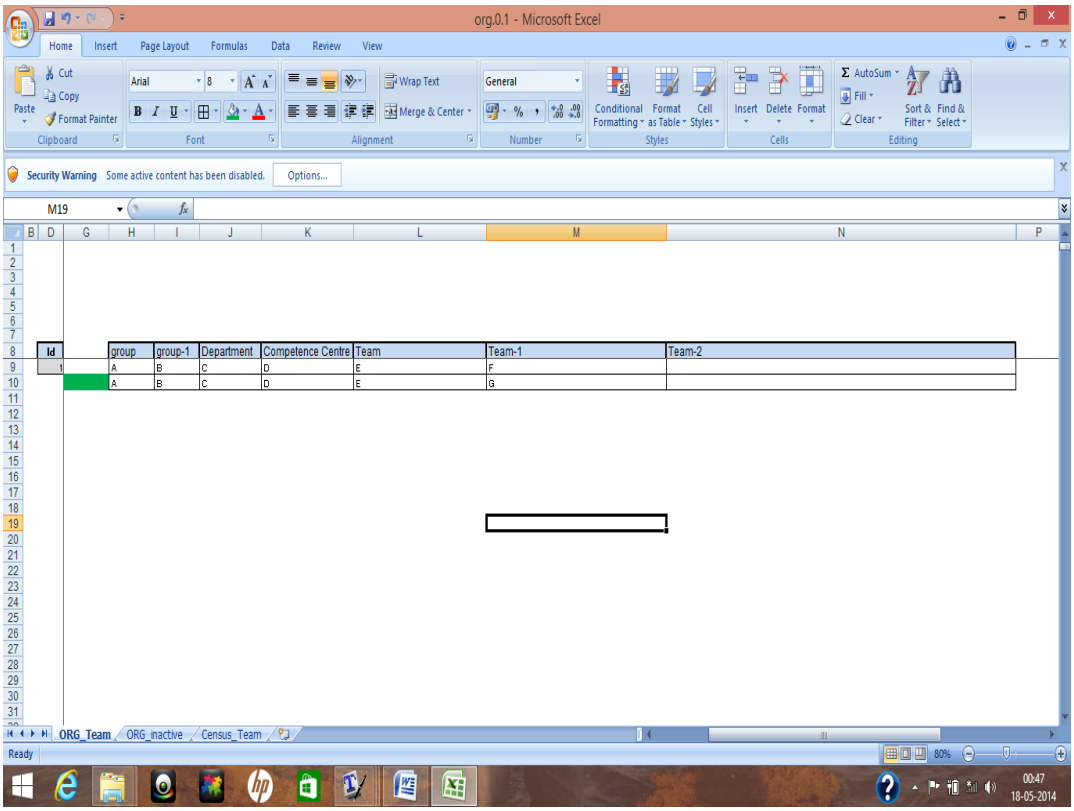

Figure 4.2: Split View of Organization
[5]

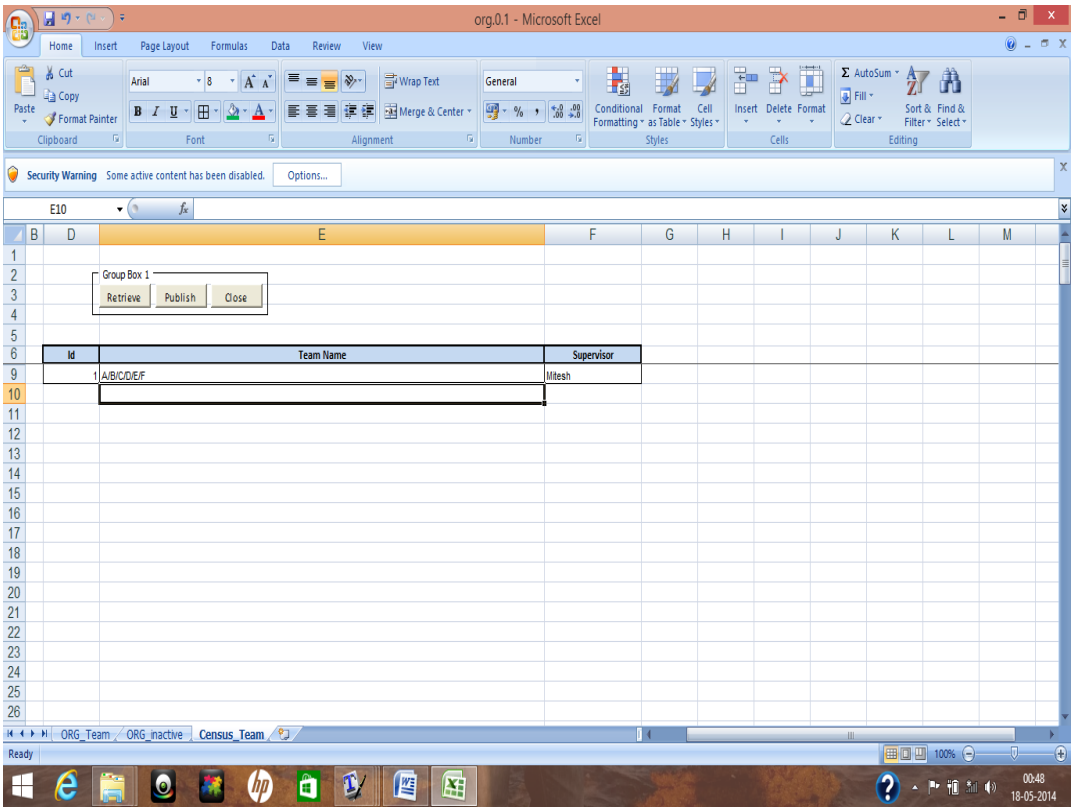

Figure 4.3: Census Admin Module
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Chapter 5

Literature Survey

5.1 Why to Use RESTful Web Service ?

- The Restful Web services are totally stateless. This could be tried by restarting the server and checking if the interactions can survive.
- Restful services give a great caching infrastructure over HTTP GET system. This can enhance the performance and execution, if the information the Web service returns is not modified regularly and not dynamic in nature.
- The service maker and service client need to have a typical understanding of the connection and also the substance being passed along as there is no standard situated of tenets to depict the REST Web services interface.
- REST is especially valuable for confined profile gadgets, for example, portable and Pdas for which the overhead of extra parameters like headers and other SOAP components are less.
- REST services are not difficult to incorporate with the current sites and are uncovered with XML so the HTML pages can consume the same without breaking a sweat. There is barely any need to refactor the current site architecture. This makes designers more profitable and agreeable as they won't need to revise everything sans preparation and simply need to extra the current usefulness.
- REST-based implementation is simple compared to SOAP.

[2] The following principles encourage RESTful applications to be simple, lightweight, and fast :

- **Resource identification through URI :**

  A Restful web service uncovered a set of resources that recognize the focuses of the cooperation with its clients. Resources are distinguished by Uris, which give a worldwide tending to space to resources and service finding. .

- **Uniform interface :**

  Resources are controled using an altered set of four make, retrieve, update, delete operations: PUT, GET, POST, and DELETE. PUT makes another resource, which could be then erased by utilizing DELETE. GET read the current state of an resource in some representation. POST exchanges another state onto an resource .

- **Self-descriptive messages :**

  Resources are decoupled from their representation with the goal that their substance could be gotten to variety of formats, for example, HTML, XML, plain content, PDF, JPEG, JSON, and others. Metadata about the resources is accessible and utilized, for instance, to control storing, identify transmission failures, arrange the suitable representation design, and perform validation or access control. See Responding to HTTP Methods and Requests and Using Entity Providers to Map HTTP Response and Request Entity Bodies for more data.

- **Stateful interactions through hyperlinks :**

  Every connection with a resource is stateless; that is, solicitation messages are independent. Stateful connection are focused around the idea of express state exchange. A few strategies exist to trade state, for example, URI revising, cookies, and hidden form fields. State could be inserted accordingly messages to indicate substantial future states of the connection. See Using Entity Providers to Map HTTP Response and Request Entity Bodies and Building Uris in the JAX-RS Overview record for more data.

5.2 Reduce code complexity and overhead using JPA as ORM

- Java Persistence API is the standard API to manage the persistent data and for object relational mapping between database data to java class object.
- Using JPA we can avoid writing DDL in a database specific dialect of SQL. Instead you write mappings of database table to java class in XML, or using Java annotations.
- When we need to queries to database, using Java Persistence Query Language we can express the queries in terms of the Java entities rather than the native SQL tables and columns.
- It reduce the code complexity by avoiding native SQL query as we doesn't need to write native SQL query for database operation instand we query to java class object
- For the Object Relational Mapping implementation,JPA is cleaner, simpler, less complex and less labour intensive than JDBCs SQL query with hand-written mappings.
- With respect to complexity of relation between database tables, the more complicated your data model, the more beneficial it is to use JPA.

Chapter 6

Tools and Technology

6.1 Visual Basic For Application

The Windows variant of Excel backings programming through Microsoft's Visual Basic for Applications (VBA), which is a subset of Visual Basic. Programming with VBA permits spreadsheet control that is incomprehensible with standard spreadsheet methods. Developers may compose code straightforwardly utilizing the Visual Basic Editor (VBE) got to utilizing the Visual Basic symbol on the Developer Tab. Clicking that symbol opens a window to the Visual Basic nature's turf, which incorporates a window for composing code and a modern debugging and code module the earth. The client can execute practically any numerical strategy in VBA and aide the figuring utilizing any wanted halfway comes about reported over to the spreadsheet.

The most well-known and least demanding approach to produce VBA code is by utilizing the Macro Recorder. The Macro Recorder records the mouse and console movements of the client and produces VBA code that is then held inside a macro. These movements can then be rehashed consequently by running the macro. The macros can additionally be joined to distinctive trigger sorts like console alternate routes, a summon catch or a realistic. The movements in the macro might be executed from these trigger sorts or from the bland toolbar choices. The VBA code of the macro can likewise be altered in the VBE. Certain characteristics, for example, circle capacities and screen prompts by their own particular properties, and some graphical presentation things, can't be recorded, however must be entered into the VBA module specifically by the software engineer.

Macros might be actuated utilizing a catch utilizing the structure menu, and propelled clients can utilize client prompts to make an intuitive project.

VBA code associates with the spreadsheet through the Object Model, a vocabulary distinguishing spreadsheet articles, and a set of supplied capacities or strategies that empower perusing and keeping in touch with the spreadsheet and association with its clients Client made VBA subroutines execute these activities and work like macros produced utilizing the macro recorder, yet are more adaptable and productive. [1]

6.2 RESTful Web Service

- **Web Service**

  a Web service is a technique for communications between two electronic gadgets over the www(World Wide Web). It is a software function gave at a system address over the web with the service constantly on as in the idea of utility processing. Web services are application parts which impart utilizing open conventions. Web services are independent and depicting toward oneself and could be ran across utilizing UDDI. By utilizing Web services, your application can distribute its capacity or message to whatever is left of the world. Web services use XML to code and to translate information, and SOAP to transport it (utilizing open conventions).

- **RESTful Web Service**

  REST describes an architectural principles by which data can be transmitted over a standardized interface. REST does not hold an extra informing layer and concentrates on configuration guidelines for making stateless administrations. A customer can get to the resource utilizing the remarkable URI and a representation state of the asset is returned. With every new asset representation, the customer is said to exchange state. While getting to Restful assets with HTTP convention, the URL of the asset demonstration as the asset identifier and Head,get, Head,put, DELETE and POST are the standard HTTP operations to be performed on that asset.

[7]

6.3 JAVA JAXB Parser

JAXB permits Java designers to get to and process XML information without needing to know XML or XML transforming. For instance, there's no compelling reason to make or utilize a SAX parser or compose callback routines. It makes utilization of a given outline of a XML record and naturally creates the obliged Java classes, relating to that composition. Current pattern concentrates on XML representation of Data, for simplicity of trade in web-administration and generally.

JAXB remains for Java Architecture for XML Binding and has been accessible since Java 1.5 days, however got to be completely some piece of the dialect with Java 6.0. The framework vigorously depends on included metadata (annotations) in your source code to naturally delineate XML record to a Java class order.This makes working with XML significantly all the more simple, your code more powerful and less blame tolerant to the frequently fluffy nature of XML information sources with missing components and changing component requests.

XML is a various leveled information group, continually encoding a tree structure .Java classes can likewise be organized in such a route, to the point that they structure a tree order. JAXB makes utilization of that and handles all transformations to inherent primitive information sorts and settled classes, bringing about a completely populated information tree when finished. It likewise backs the Java Collection Framework and thusly can consequently populate and separate the diverse sorts of records accessible.

6.4 Java Persistence API as ORM

- Java Persistence API is a specification for Object Relational Mapping which is implemented by different java Vendors.

- Layer structure of JPA is as below figure

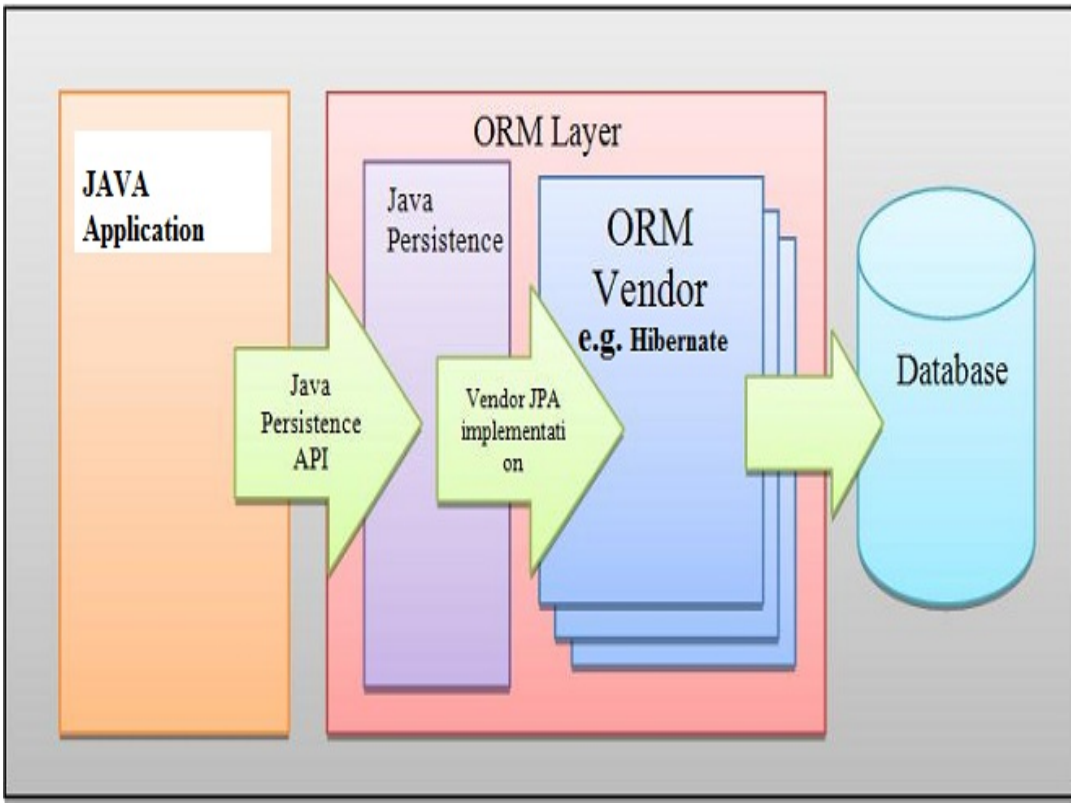

Figure 6.1: Layer Structure of JPA Context
[5]

- JPA define a runtime Entity Manager API processing queries and transaction on the objects against the database.
- JPA Entity is essentially a persisted / persistable instance of a class. Changing values on it works just like changing values on any other class instance. The difference is that you can persist those changes and, in general, the current state of the class instance (entity) will overwrite the values the row for that instance (entity) had in the database, based on the primary key in the database matching the "id" or similar field in the class instance (entity).
- It is defined an object-level query language JPQL to allow querying of the objects from the database.
- JPQL is stands for Java Persistence Query Language which is used to query against entities stored in a relational database. Queries will be resembled in SQL query in syntax, but operate against entity objects rather than directly with database tables.

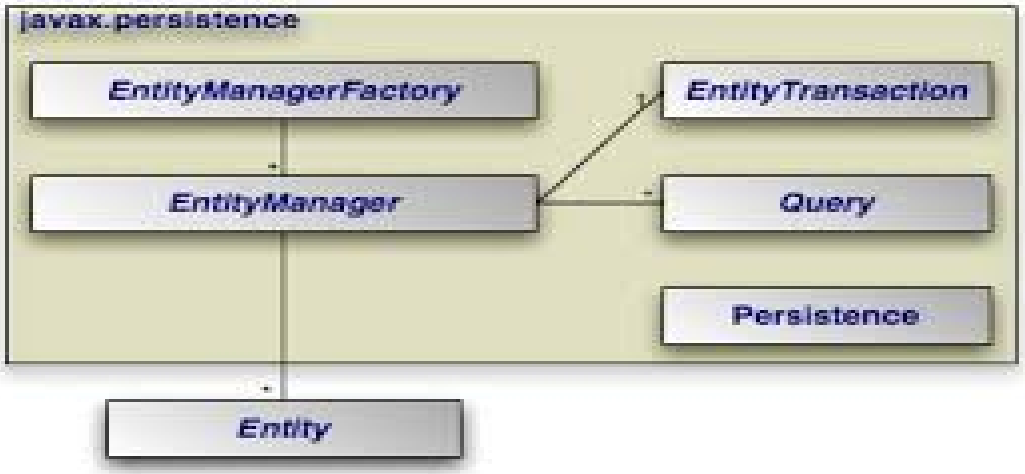

Figure 6.2: JPA Components
[5]

Chapter 7

Conclusion

This report includes overview of Dashboard Automation Tool and its basckground process and also about the RESTful Web Service and Java Persistence API as Technology exploration.

Automation for organizations tedious manual work like Census Counting, Logging time effort, database administration task are initial need in any organization. By implementing automation tool, visibility of resources, time effort for different projects by different teams within an organization become clearer and management of the same as well database becomes an easier. By using this automation tool tedious manual efforts and time can be reduced. Also it provides a single consolidated platform to various teams manager, supervisor to track their teams resources, their skills, time effort for projects etc.

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