Data Governance Using Budget Editor Tool

Submitted By

Nikunj Rajnikant Vinchhi

14MCEC29

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

INSTITUTE OF TECHNOLOGY

NIRMA UNIVERSITY

AHMEDABAD-382481

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Data Goverance Using Budget Editor

Major Project

Submitted in fulfillment of the requirements

for the degree of

Master of Technology in Computer Science and Engineering

Submitted By

Nikunj Rajnikant Vinchhi

(14MCEC29)

Guided By

Prof. Rupal Kapadi

DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

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Certificate

This is to certify that the major project entitled **"Data Governance Using BUDGET Editor"** submitted by **Nikunj Rajnikant Vinchhi (Roll No: 14MCEC29)**, towards the fulfillment of the requirements for the award of degree of Master of Technology in Computer Science and Engineering(CSE) of Institute of Technology, Nirma University, 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 project, to the best of my knowledge, haven't been submitted to any other university or institution for award of any degree or diploma.

Prof. Priyanka Sharma
Associate Professor,
Computer Science Engineering,
Institute of Technology,
Nirma University, Ahmedabad

Prof. Rupal Kapadi
Assistant Professor,
Computer Science Engineering,
Institute of Technology,
Nirma University, Ahmedabad

Dr. Sanjay Garg
Professor and Head,
CSE Department,
Institute of Technology,
Nirma University, Ahmedabad.

Prof.P. N. Tekwani
Director,
Institute of Technology,
Nirma University, Ahmedabad

CERTIFICATE

This is to Certify that the Major Project Report **Data Goveranance Using Budget Editor Tool** submitted by **Nikunj Rajnikant Vinchhi (14MCEC29)** as the fulfillment of the requirements for the degree of Master of Technology in **Computer Science And Engineering (CSE)** from Institute of Technology, Nirma University is the record of work carried out by him under my supervision. The work submitted in our opinion has reached a level required for being accepted for the examination and it is pure research based as this project is related to the enhancement and development.

Date:

Project Manager

Mrs. Jyoti Kumar

TR&D Department

STMicroelectronics, India

Statement of Originality

I, **Nikunj Rajnikant Vinchhi**, Roll. No. **14MCEC29**, give undertaking that the Major Project entitled "**Data Goveranance Using Budget Editor Tool**" submitted by me, towards the fulfillment of the requirements for the degree of Master of Technology in **Computer Science & Engineering** of Institute of Technology, Nirma University, Ahmedabad, contains no material that has been awarded for any degree or diploma in any university or school in any territory to the best of my knowledge. It is the original work carried out by me and I give assurance that no attempt of plagiarism has been made. It contains no material that is previously published or written, except where reference has been made. I understand that in the event of any similarity found subsequently with any published work or any dissertation work elsewhere; It will result in severe disciplinary action.

_____

Signature of Student

Date:

Place:

Endorsed by

Prof. Rupal Kapadi

(Signature of Guide)

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- Nikunj Rajnikant Vinchhi

14MCEC29

Abstract

Now-a-days in every Organization there is a need to store data and analyze that to graphically.But if you have to do that thing manually and work on it regularly then it becomes complex. So the main idea behind the Computerised approach to provide the user with a more efficient way to do these things and also save the time for user.

Budget Editor is basically a user interface created in Microsoft Excel to facilitate the user to extract various data and analyze it in tabular form as well as graphically.Extraction and Report generation are possible at various hierarchical levels with the help of the flexibility provided in the user interface of the tool.

The basic objective of the document is the description of detailed working of an automated tool with important objective of handling the task and also to maintain and show the roles and responsibilities of all people under the organization.

Abbreviations

SDB	Schedule Database
REST	Representational State Transfer Protocol

Contents

List of Figures

Chapter 1

Introduction

1.1 General

Budget Analysis Tool is essentially a macro-enabled MS Excel file used for extracting data from existing databases using online server. Extraction and Report generation are possible at various hierarchical levels with the help of the flexibility provided in the user interface of the tool.

The main functions of the tool can be summarized as follows:

- Extracting Of data including extraction of data using inbuilt macros for a set of pre-defined indicators and entering these values in a pre-decided template provided within the tool.
- Report Generation for each indicator in Budget Analysis Tool i.e. computations, tabulations there are pre-specified template using excel tools and formulae.

1.2 Tools Description

Budget Editor is a Data Governance tool that is been used as an automated tool for the organization. This tool is been used by the managers and the supervsors to mantain the data by this they can diffrentiate about there plannings and the particualr out come.In technical terms there are two types of data forecast data and the capacity. And the asnalysis of this is been done bt the report generation technique by which one can come to know about the utilized resources. This tool basically brings the data based on the users right type.It brings the organizations based on the users right. And after

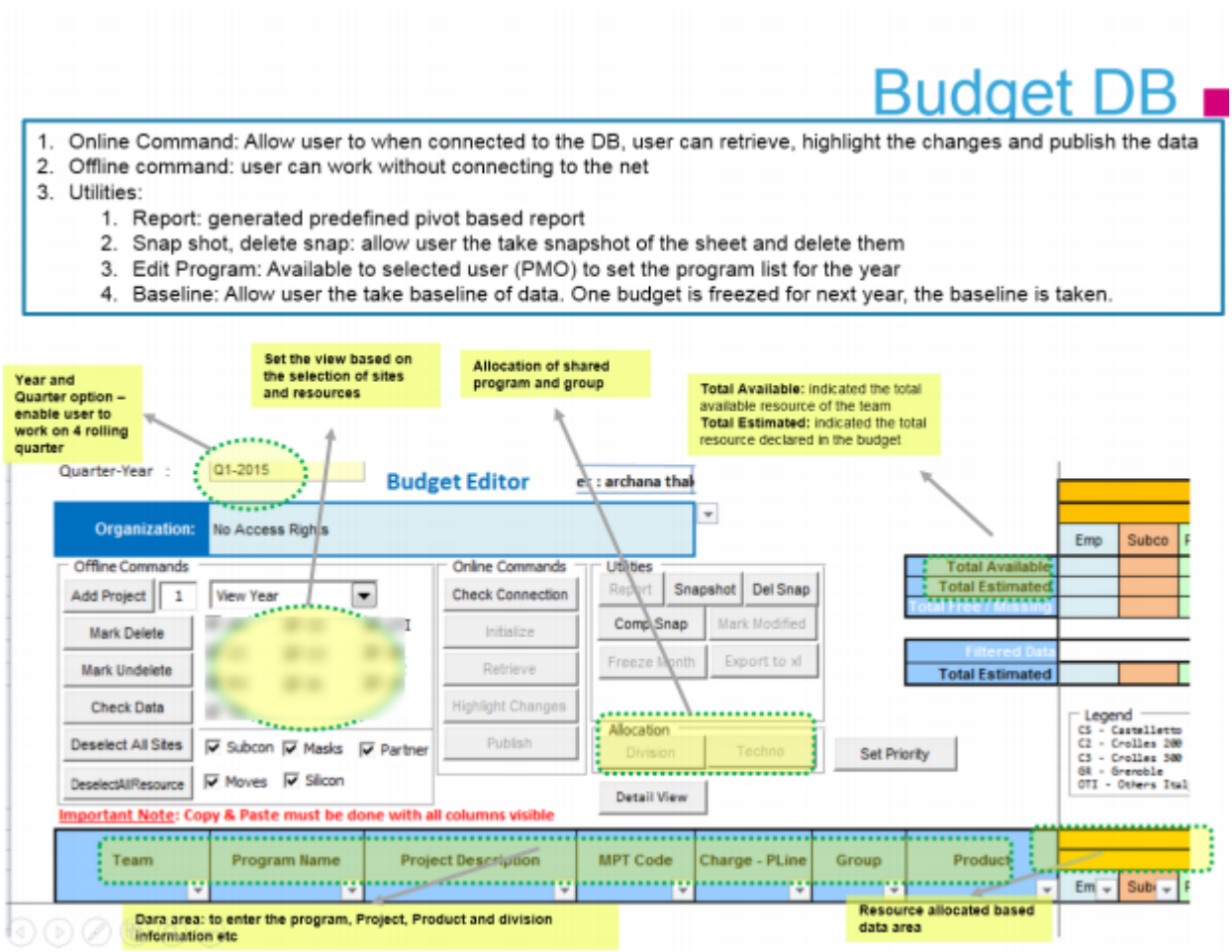


Figure 1.1: Budget Editor Front-End

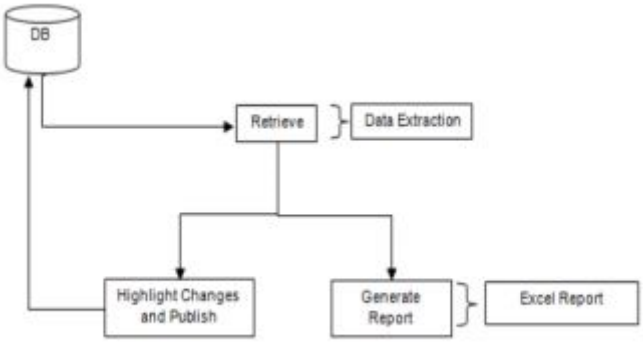


Figure 1.2: Block Diagram of Budget

these selections the required and personalized data as per the users need come as an outcome.

1.3 Scope of Work

To automate the process we write one text file which has all data about to generate the view of memory. The layout structure will parse the file and generate the product. So our task is to generate the different cut and validate it.Thus it will saves our time.

Chapter 2

Literature Survey

2.1 About Technology

- Web Service in JAVA- Restful Architecture
- MS-Excel 2010
- Visual Basic Application-VBA
- MySQL-Workbench
- Sun java Application Server

2.2 Web Service As a Middleware

- The main task of webservice is to retrieve the data from the back end side Or we call it as from the database.
- Using webservice we retrieve the data from the database and manipulate the data as per our requirement.
- Webservice is used to connect the Database and our Budget tool. Webservice retrieve the data from database and made XML Document and sent that document to our tool.

2.2.1 Restful Webservice

- Using REST architecture we can transmit the data over the interface like HTTP.And also it does not contain the extra informing layer and focuses on design rules for

creating stateless services..

- RESTful architecture is simple,light weight and fast due to the following principals
  - Resource Identification:A RESTful web service exposes a set of resources that identify the targets of the interaction with its clients. Resources are identified by URIs, which provide a global addressing space for resource and service discovery.

2.3 Visual Basic For Application

Visual Basic is a back end program that will allow user to modified and personalize the windows excel as per the use.So this application allow to user to automate the sheet.So the Developer can easily utilized the excel formula and all the features of the excel.

In the developer tab there is a column for the visual basic that will open the back end window.And also a column for design that will use to design the sheet.

Also there is one great feature called macro recorder. It record the movement of the mouse and movement of the console after whatever is done is recorded in to the macro or code and that we will manipulated later.

VBA Code combines with spreadsheets through Object Model, a vocabulary, which is typical of spreadsheets article and a kit is supplied capacity or strategies, which allows corneas and To keep in touch with spreadsheets, and association with its clients did VBA sub-routines perform these activities and functions as macros produced with the help of macro recorder, but is more flexible and productive.

2.4 MySQL Workbench

- MySQL Workbench is a tool by which we can design and create the database visually.
- MySQL Workbench is a unified visual tool for database architects, developers, and DBAs. MySQL Workbench provides data modeling, SQL development.
- This workbench tool is available for windows,Linux and MAC.
- The tool combines the database design, maintenance, administration, creation and administration by only one environment for development that combines all to form

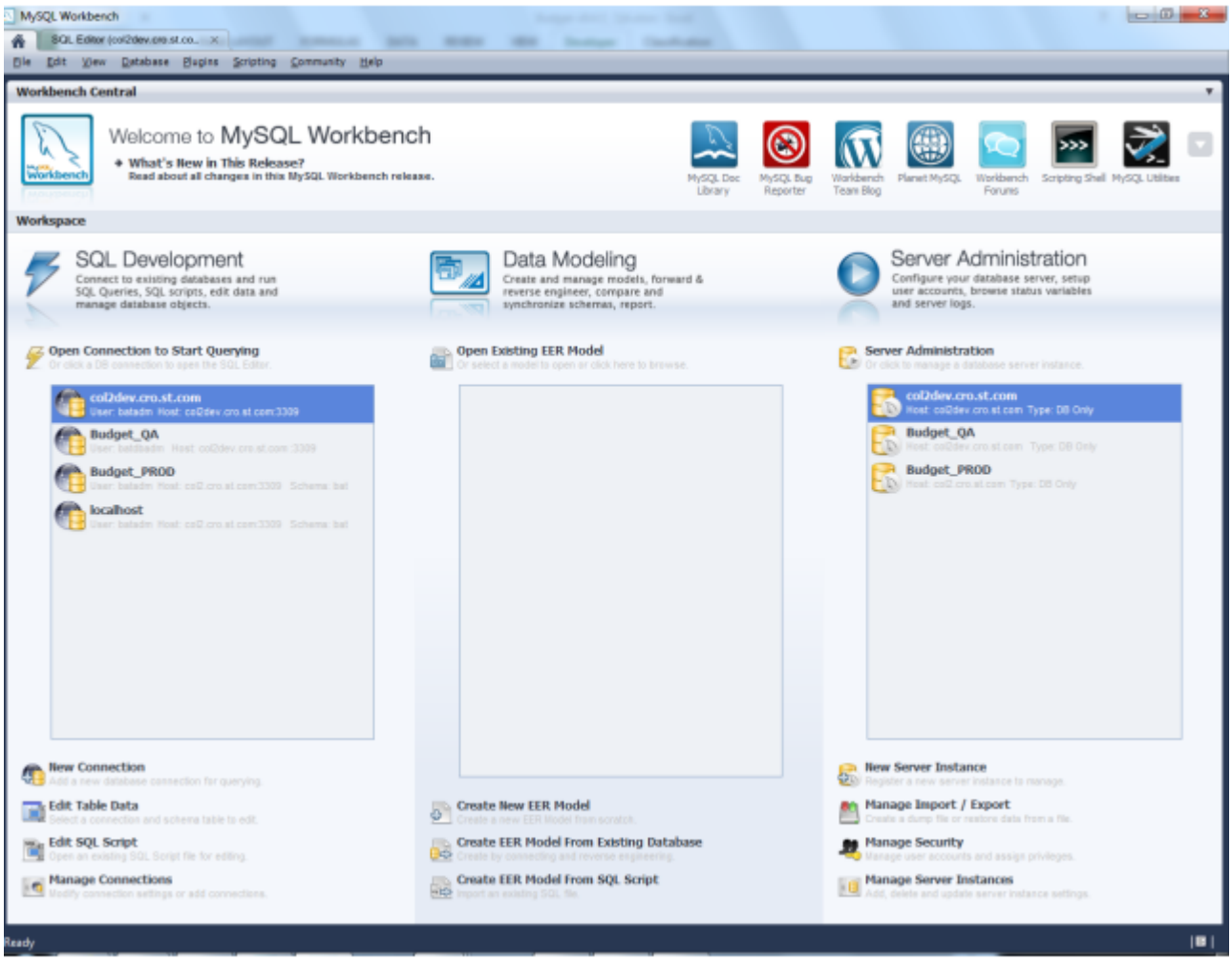


Figure 2.1: Database Managed by workBench

the MySQL database system.

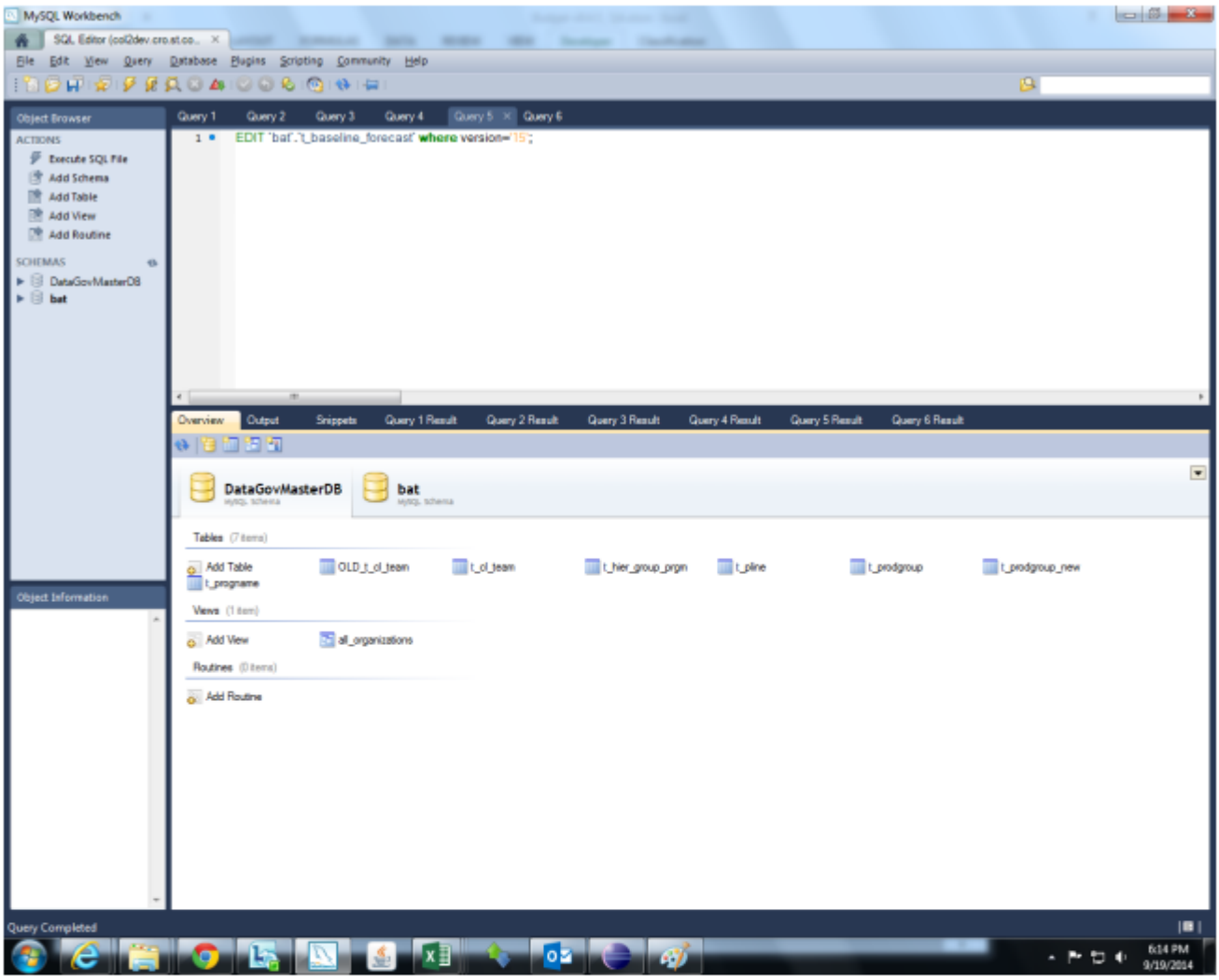


Figure 2.2: Various Database maintained in Workbench

Chapter 3

Description of Tools and Functionality

Every tool has some functionality and its used for certain task so that functionality are listed below:

3.1 Online Commands

3.1.1 Check Connection:

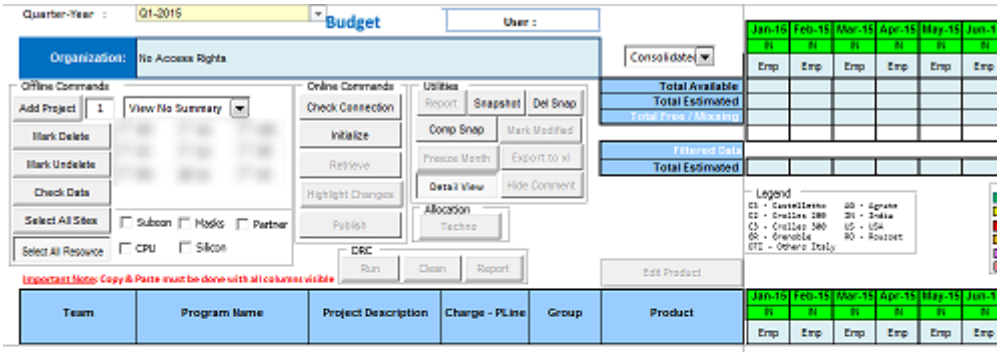
The check connection command checks the current version of your tools and if your version of the tool is outdated then it informed that you should change the version.And also the version of the tool is maintained.

3.1.2 Initialize

This Command brings all the mandatory data from the database based on user requirements.And also bring the permission of the user for the user what user will allowed to access and which team is defined for the user. And login id of the user is used to detect the users permission.

3.1.3 Retrieve

By default this command is hide when user enable the initialize command after that this command is enable. Based on the quarter year and organization that is retrieve the data. And this command brings the forecast and capacity data from the database.



2.PNG

Figure 3.1: After check Connection And Intialize

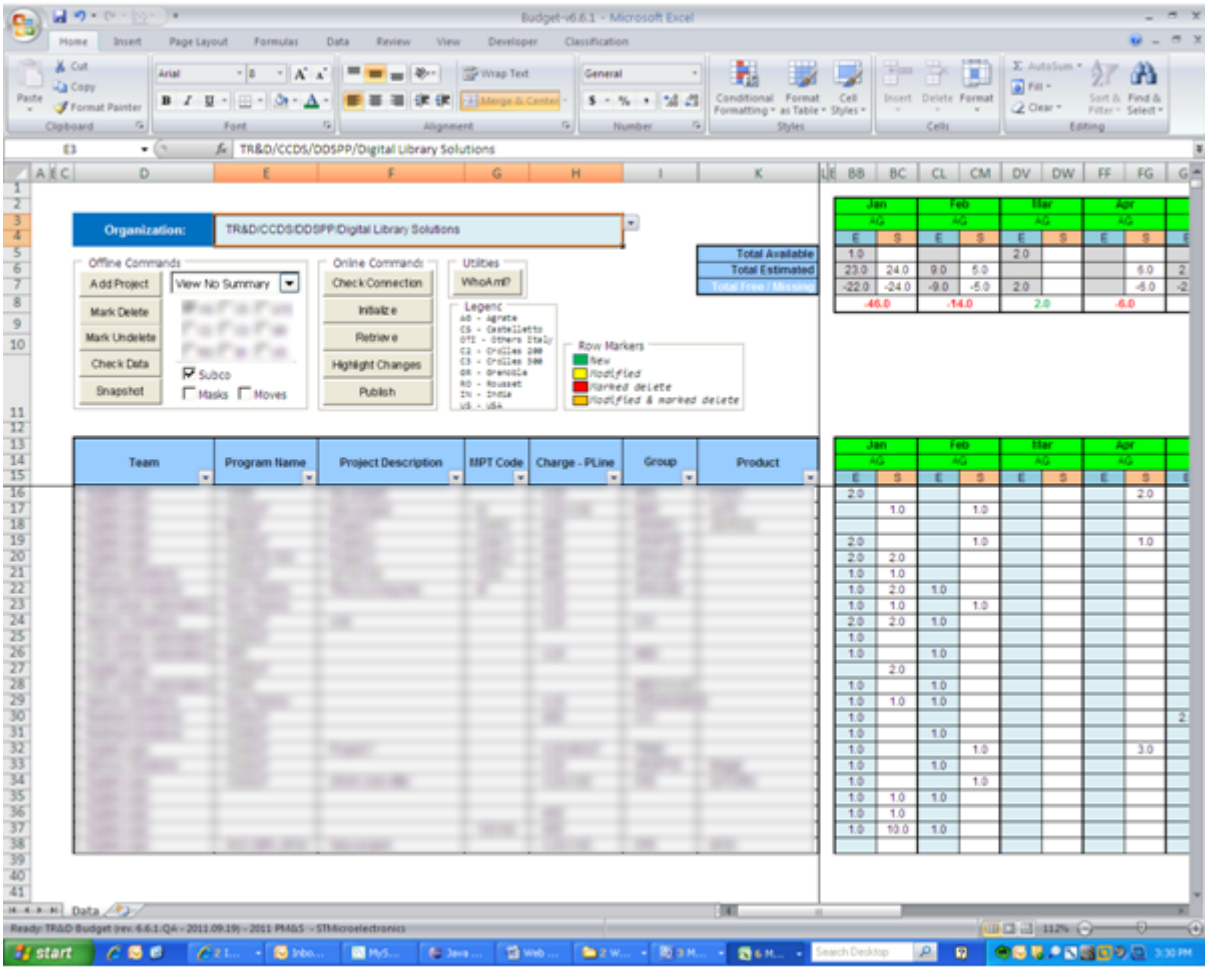


Figure 3.2: Retrieve Function

3.1.4 Highlight changes

Once retrieve the data and user update any field or else we added the new project after we use this command to show or highlight the change when the changes are done. So the user can show the change before the publish.

3.1.5 Publish

After retrieve data in the sheet if user update the forecast record or if user create the new forecast so to reflect this changes to database user use this command.

3.2 Offline Command

If the server is down or any maintenance purpose it goes down this command will work.

3.2.1 Add Project

This command used by the user if user want to create the new forecast record. Then user use this command and its also create multiple forecast Basically this command add one row and then user fill the proper value.

3.2.2 Mark Delete

To delete rows from the database the marked delete is used select a cell and click on the mark delete button one or many rows can be selected in one go. Marked delete donâĂŹt delete the data it just mark it and after the publish button is used then only the data would be deleted.

3.2.3 Unmark Delete

The marked data can be retrieved and if user donâĂŹt want to delete the data then select the cell and press this button now the data would be unmarked. And thus would not be deleted.

3.2.4 Check Data

Some time user fails to fill some of the important fields that are necessary and required for further processing. then this button searches for that field. And mark that particular cells.

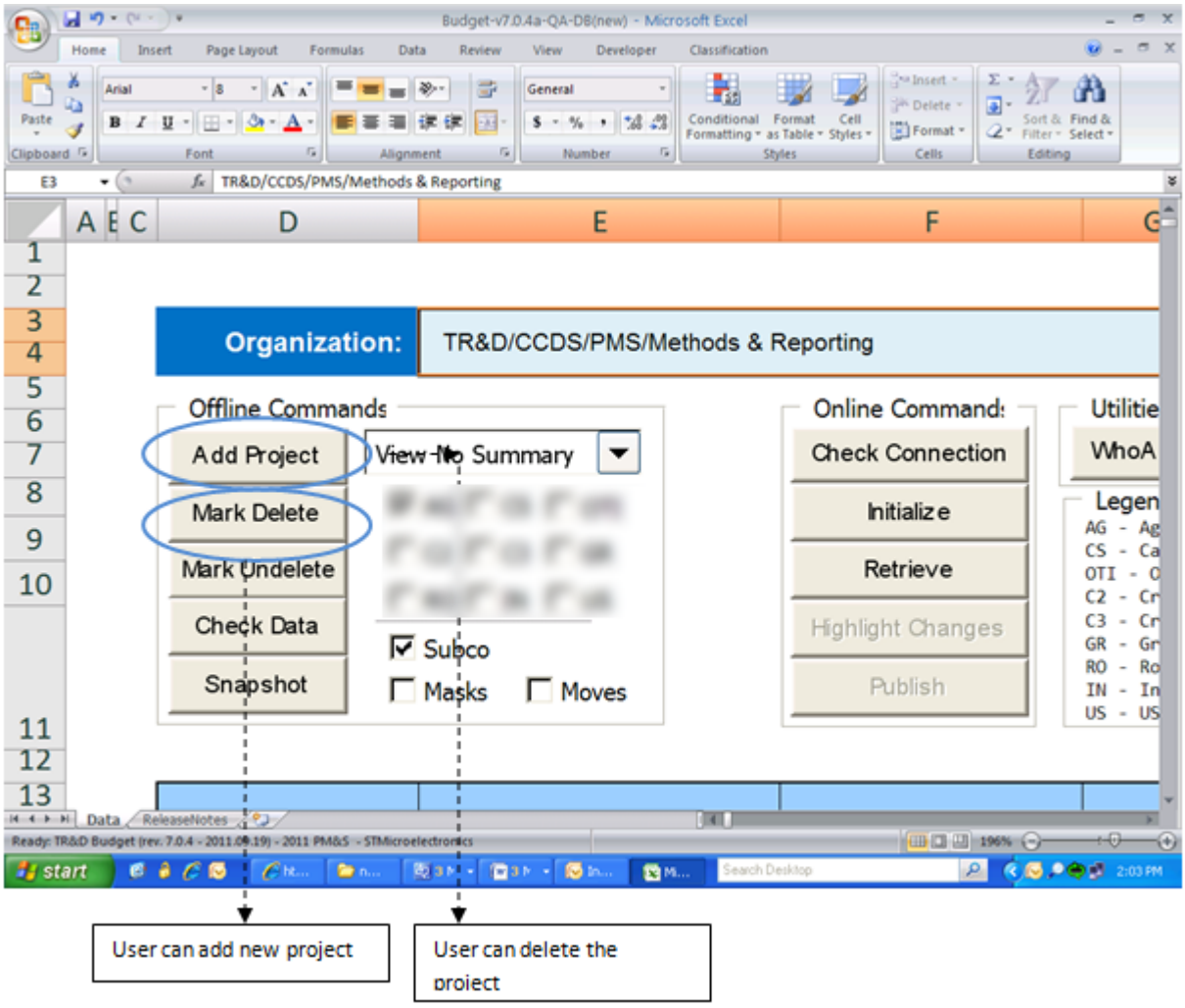


Figure 3.3: Add and Delete

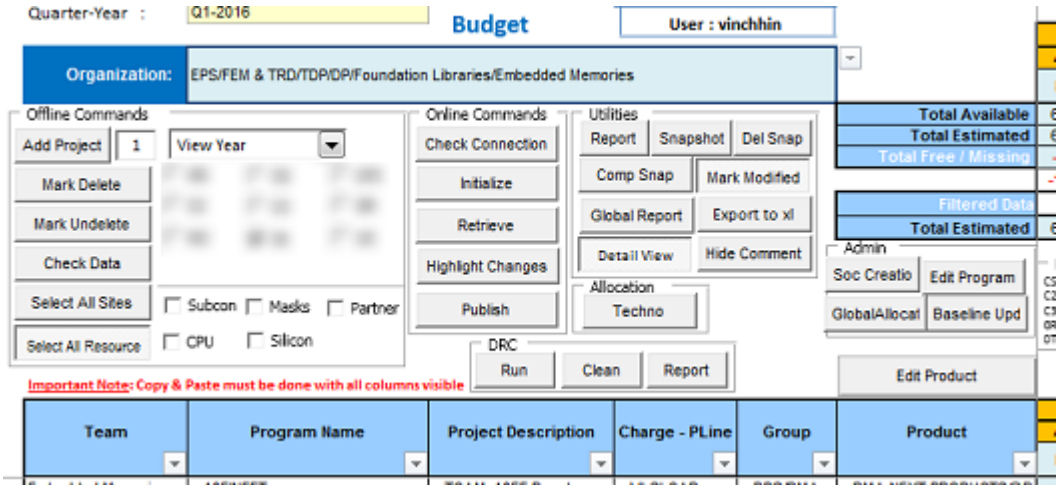


Figure 3.4: Compact View

3.2.5 Select All Sites

A command that selects all the available sites in one go. So that the user need not to select individual sites.

3.2.6 Select All Resources

Same as the select all sites. This command that selects all the available resources in one go. So that the user need not to select individual resource.

3.2.7 View Year

This is a combo box will allow user to view the templet either with a year wise summary or without the summary.

3.2.8 Compact View / Detailed View:

Some fields are not important for some users and some field can not be deleted as per there request as others may use those fields so its a mid path for making happy both the user by creating this button. So user may use the field they need.

3.2.9 Hide/Unhide Effort Window:

This is basically for hiding or unhiding the comment window that pop up each time to help user to fill the field with correct value but some time it became irritation for the user. As user knew that user donâĂŹt want this comments as user has knowledge of filling so by using this user can disable the comments window.

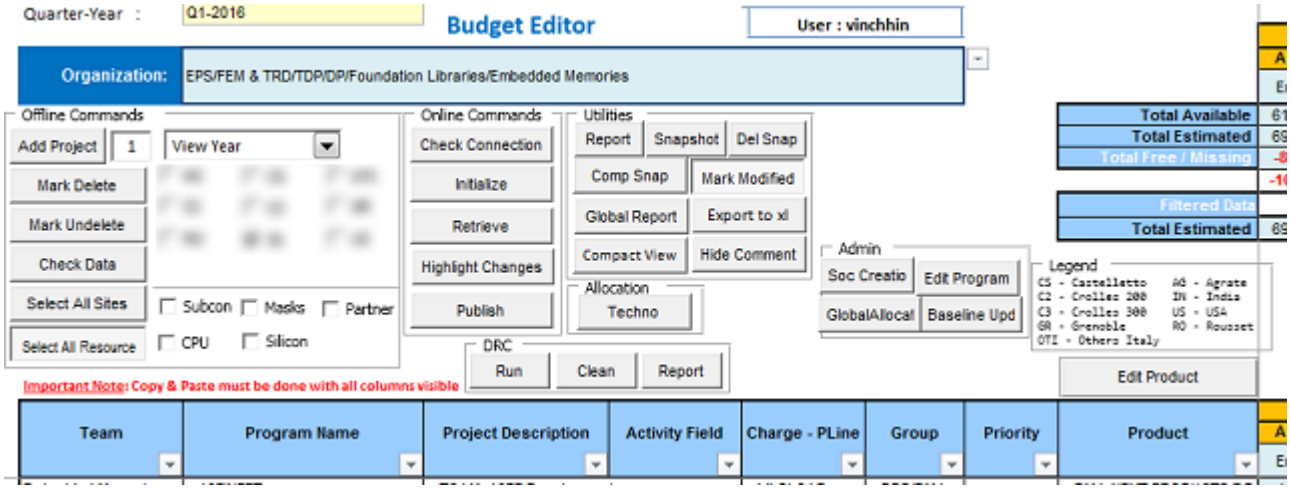


Figure 3.5: Detail View

3.3 Utilities

3.3.1 Report

This command is like summary that is generated after too much analysis of the forecast and capacity Data.The calculation part of the report is shown in Pivot table. So one can easily understand the report.

3.3.2 Global Report

This one is almost same as normal report. The main difference is when the user is not provide techno allocation for shared program at that time the Global allocation is used and report is generated and this called global report. This allocation is given by admin.

3.3.3 TLS vs. Budget

In the TLS tool the person enter actual effort and the budget tool we have fore-casted effort. So by this implementation one can easily understand the effort means how much resource is utilized for particular project.

3.3.4 Snapshot

The snapshot function is used to capture the current sheet data. So one can easily take a snapshot and save for later use.And this snapshot is also store in sheet.

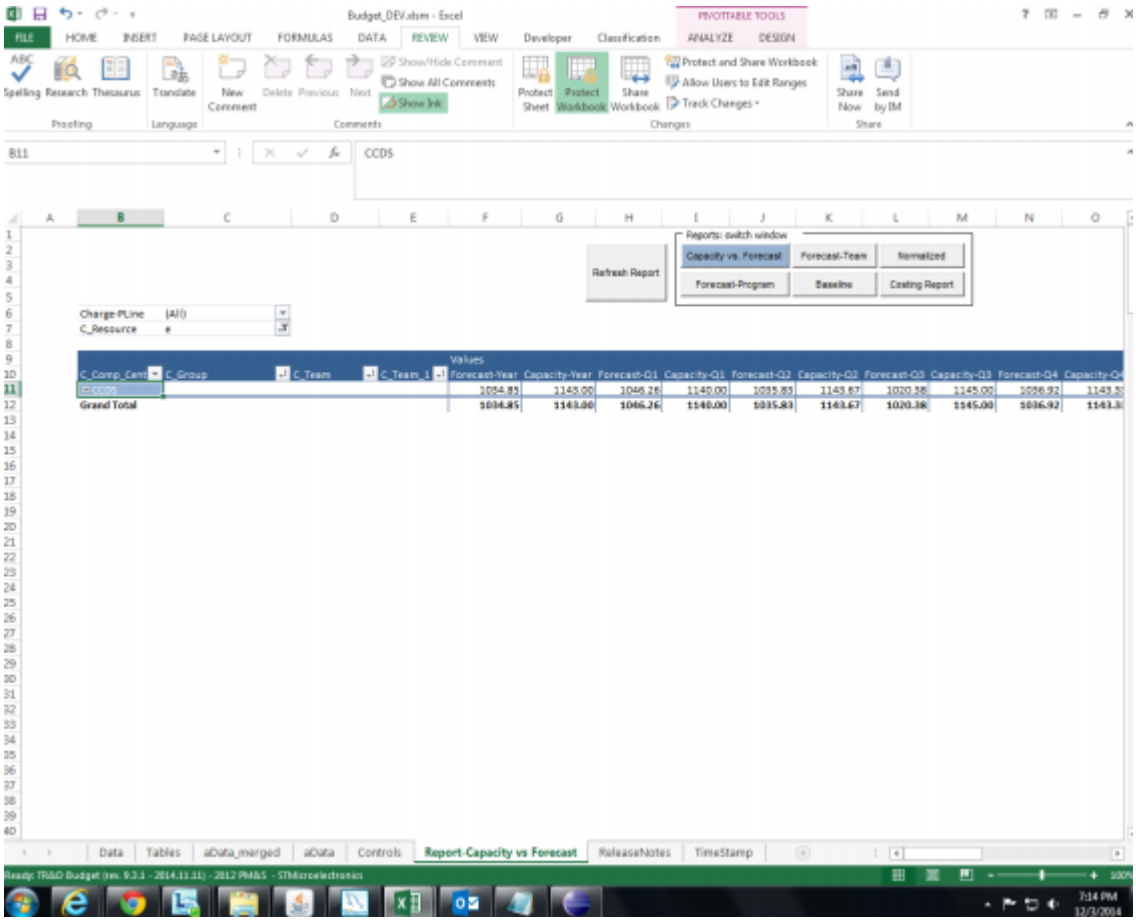


Figure 3.6: Report View

3.3.5 Delete Snapshot

This function is used for to delete the snapshot which user have taken.So if any not used snapshot which only take some space those are deleted.

3.3.6 Compare Snapshot

This function is used to compare the two snapshot so one can find the similarities between them.

3.3.7 Mark Modified

When user modified the data it will mark and from when user want to see the data. And there is a field or textbox to enter the date and then modified data is highlighted.

3.3.8 Freeze Month

This freeze month command is used for freeze the month panel.Here, from the drop-down select the month and upto that month panel will be freeze.

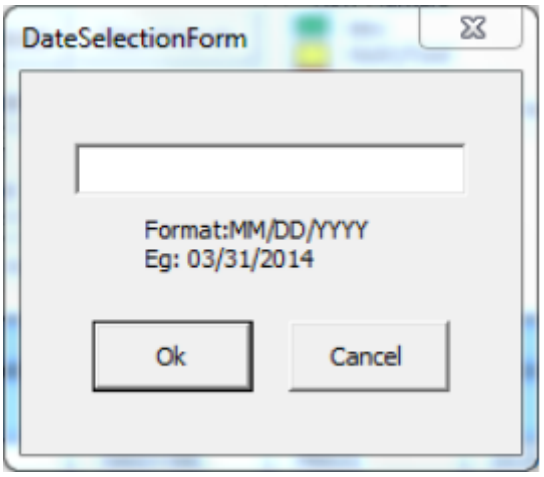


Figure 3.7: Marked modified Window

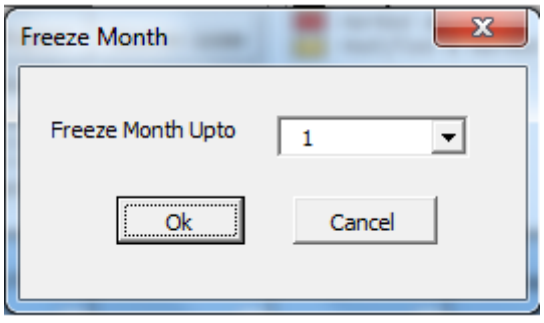


Figure 3.8: Freeze Window

3.3.9 Edit Program

This function is used by Admin.And he used for to add or delete or changing the program.And not every user have access for this function.SO permission is maintain for that because other user have only read access.

3.4 Allocation

The Allocation is used to show the detail about where resource is distributed in which way.Actually it gives a detail about the Resource Allocation of the Program or group and there is two types of allocations are there.

3.4.1 Techno Allocation

When Team have several program running on then and user select the program name as shared after that going to techno allocation sheet and define every program running in the team and also specify the resources does the team need.

3.4.2 Division Allocation

This allocation same as techno allocation. In division allocation if one can have many group then he select the group name as shared and after that going to division allocation sheet and define every group and specify the resources for allocation.

3.4.3 Global Allocation

When team have several program running on then and user does not provide techno allocation for the shared program at that time this allocation used for shared program. And this allocation is given by admin.The global Report generation this global allocation is used.

3.5 View Change

3.5.1 Detail View/Compact View

This is for changing the view according to user. Half part of the view is hide when use Compact view the main field is shown But in detail view, all the field is shown.

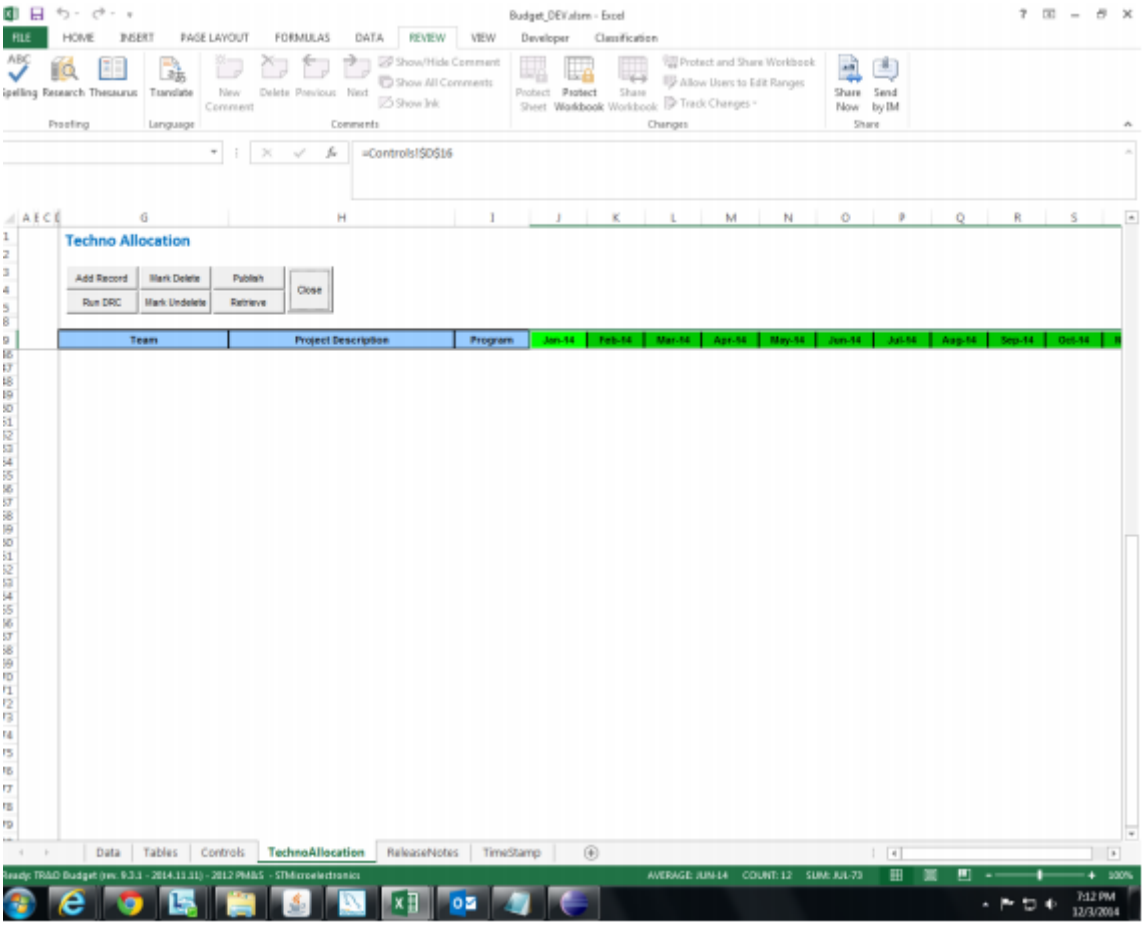


Figure 3.9: TechnoAllocation

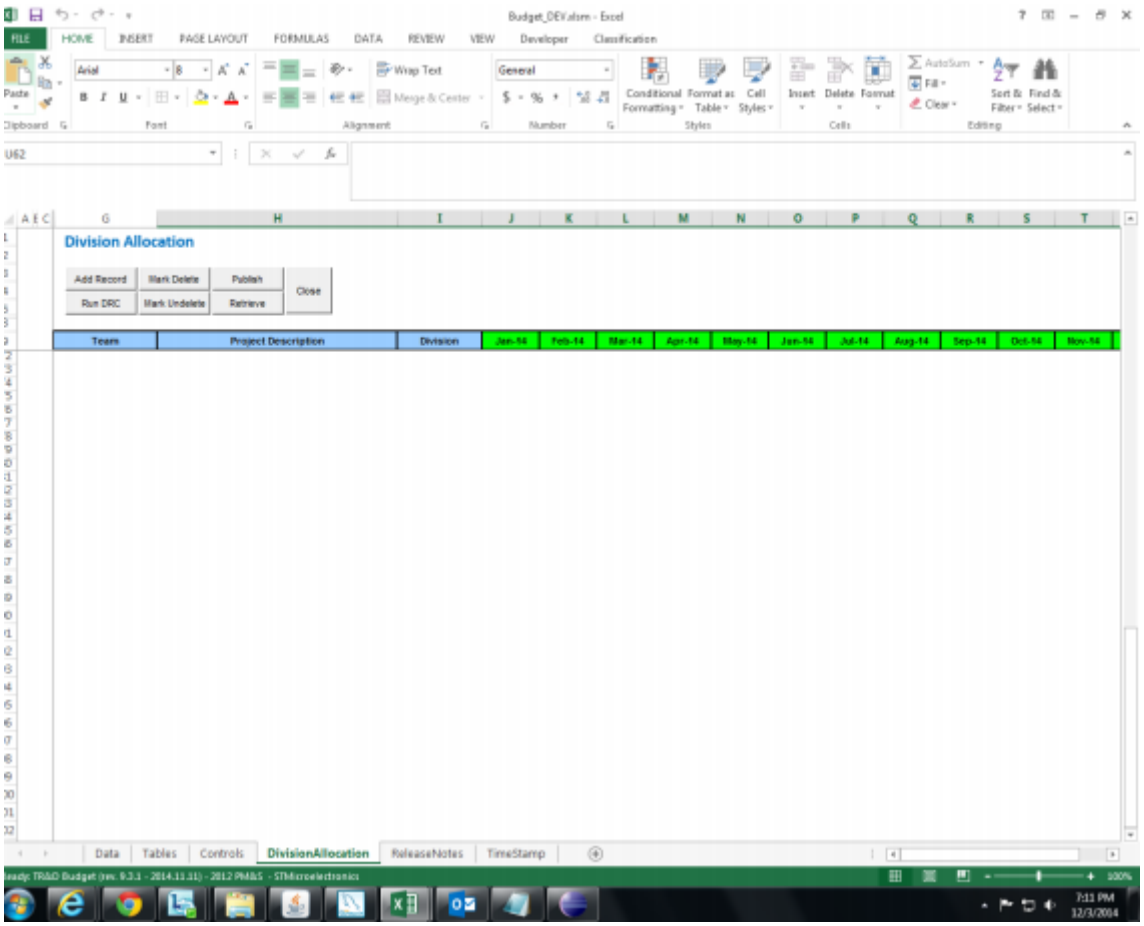
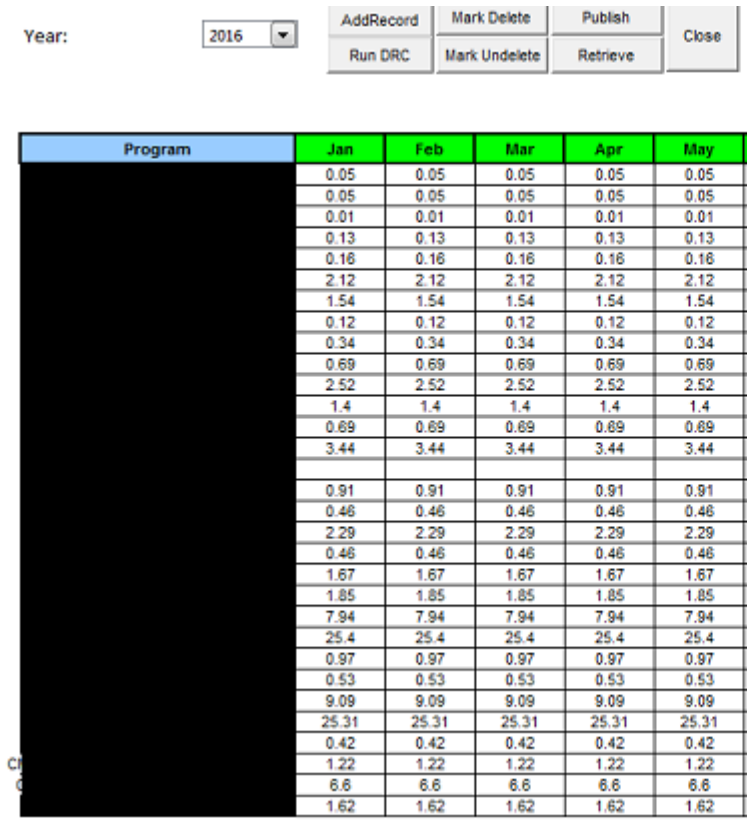


Figure 3.10: DivisionAllocation



Program	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13
	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16
	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12	2.12
	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54	1.54
	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12	0.12
	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34	0.34
	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52	2.52
	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4
	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69	0.69
	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44	3.44
	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29	2.29
	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46	0.46
	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67	1.67
	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85	1.85
	7.94	7.94	7.94	7.94	7.94	7.94	7.94	7.94	7.94	7.94	7.94	7.94
	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4	25.4
	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09	9.09
	25.31	25.31	25.31	25.31	25.31	25.31	25.31	25.31	25.31	25.31	25.31	25.31
	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42	0.42
	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22	1.22
	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6	6.6
	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62	1.62

Figure 3.11: GlobalAllocation

3.6 Detailed Flow And Explanation

3.6.1 Input Parameter

The tool is in essence a macro enabled MS Excel file, with different sheets dedicated for the basic functions of input, mapping, extraction, and output that is, reports. Each of these is explained in the following section.The extraction tool receives input in form of specifications from the user (representing a specific organization) in the very first sheet named as Data.

- Team:Here we can select the team to which we are creating the budget report. This is top down button .it will give the all the teams which are available. This that list we can select the one team .

- Program Name: In this column we will get the program name .this program name will get populated according to the team and id .this information will also be populated by the from the xml page.Program name will listed according to the team selected by team manager.

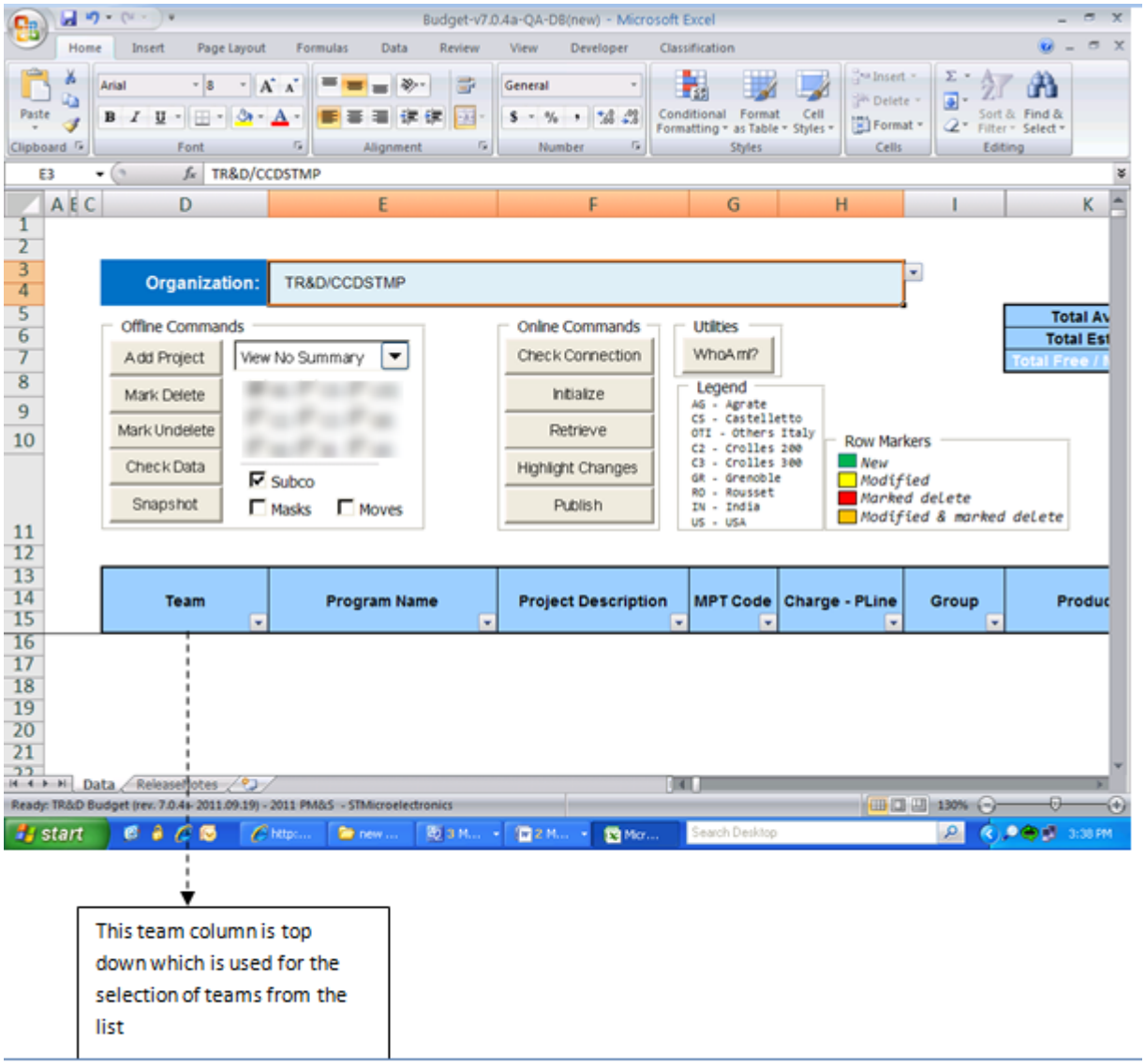


Figure 3.12: Team Selection

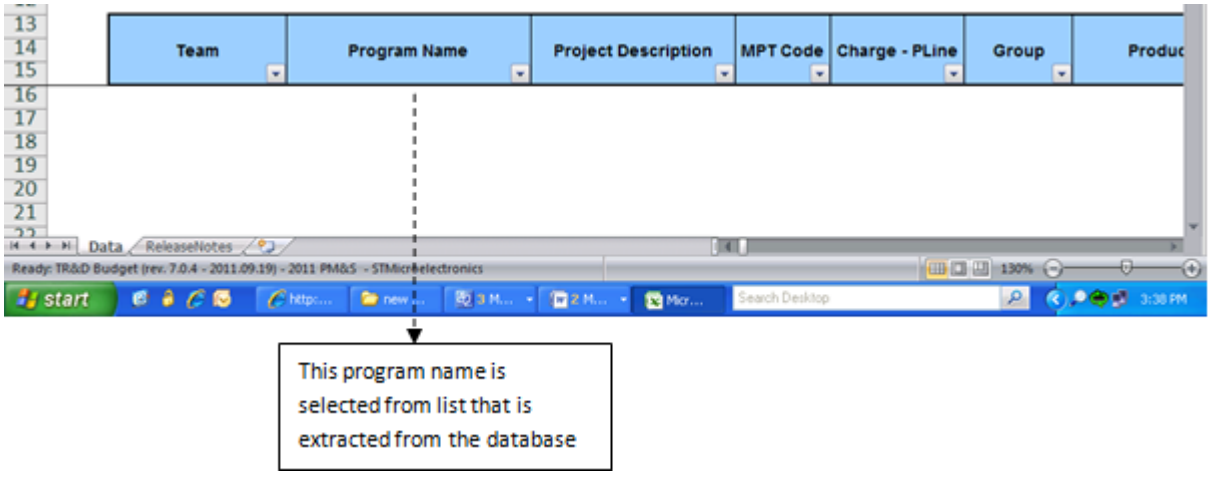


Figure 3.13: Program name selection

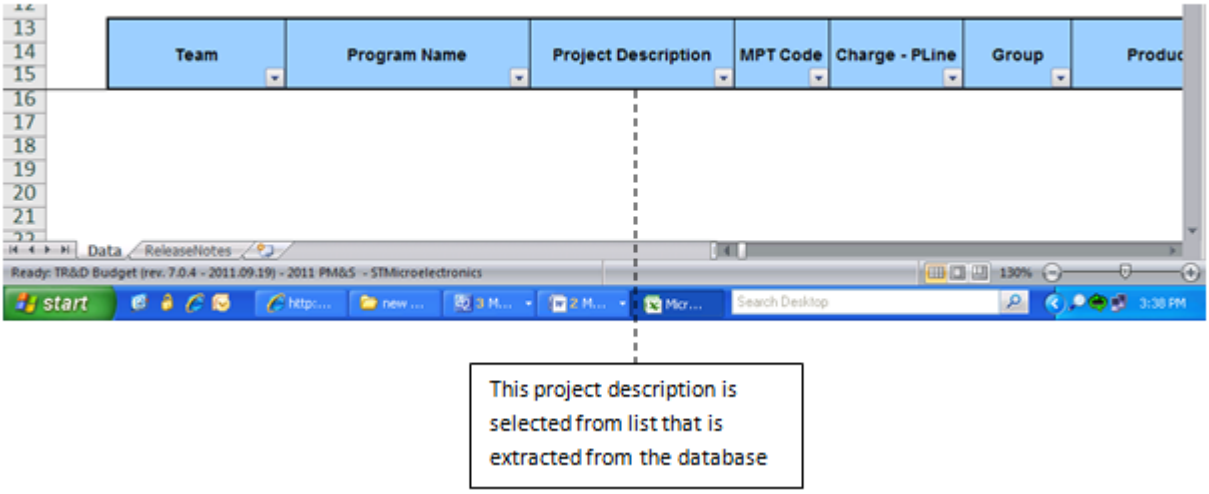


Figure 3.14: Project Description

- Project Description: In this column we will the long string which describes about the project and retrieved from the forecast table.
- MPT Code: In this column we get information regarding the MPT code which is related with the program name.
- Charge PLine :In this column we get information regarding the Charge which is related with the the team that is extracted.
- Group: In this column we will get information regarding groups .this group column is populated using the xml page.
- Product: In this column we will get the information regarding product. This product column is populated by taking data from the xml page.

3.7 Census Portability

In the Budget editor there is a one term called Capacity.Capacity means we have fixed amount of resources means we can't have more value.So in Budget editor capacity is filled by admin manually. And each team has different capacity value. To reduce the task of admin we create one program called it Census Portability.

When we run the program at that time it takes several parameters as input. Like start month, end month, year, team means in which month you have to count the capacity for particular team for given particular year.

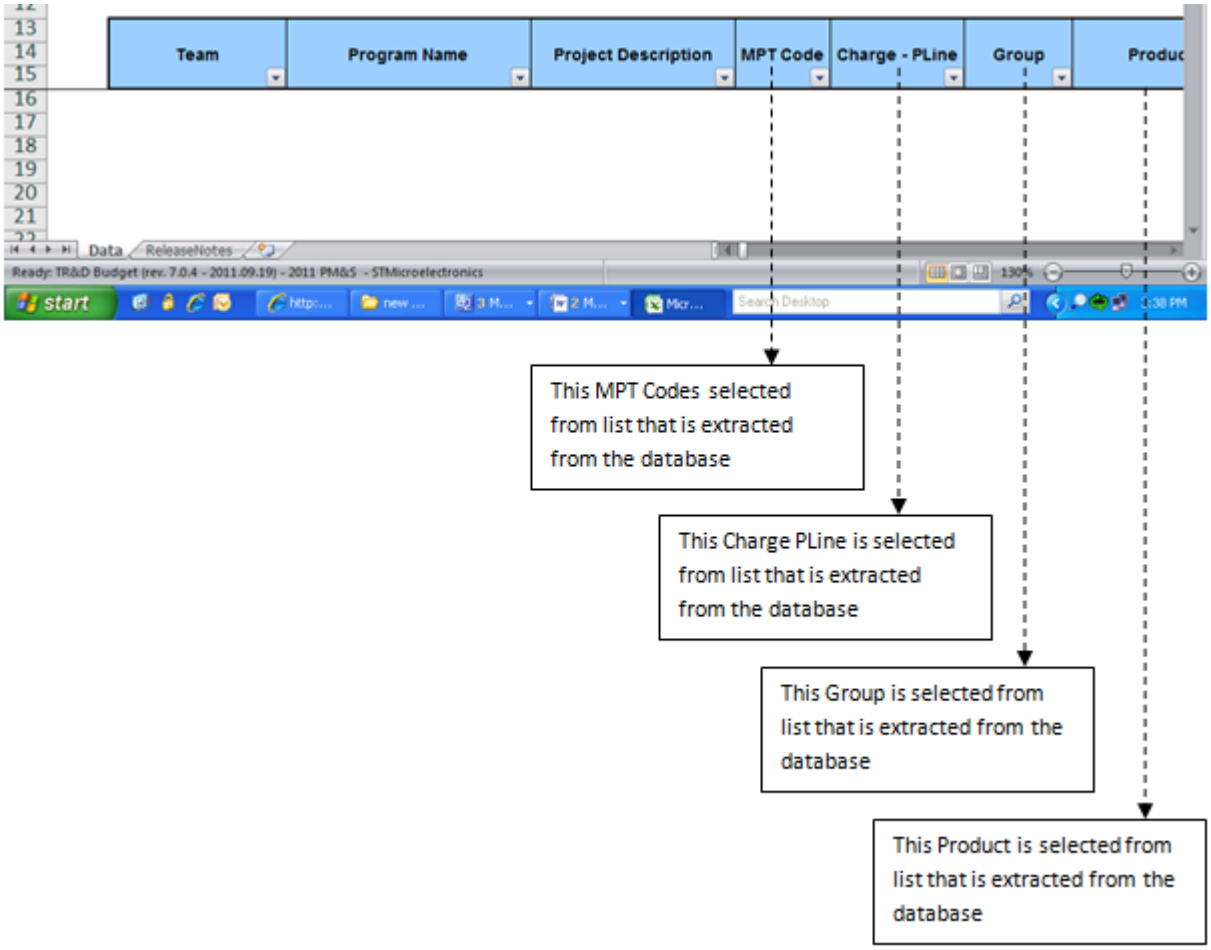


Figure 3.15: Other Inputs

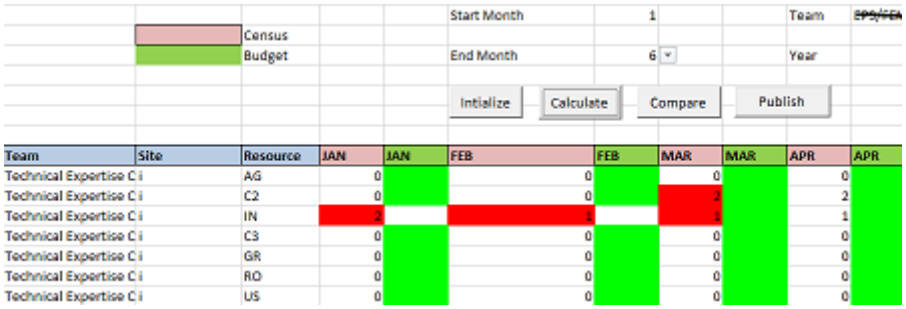


Figure 3.16: Census Portability

This program gives the output in sheet like one column for budget capacity and another one is original capacity now we have to modify actual budget capacity and publish the changes in to the Database.

Chapter 4

Architectural Changes

The architecture is the most important thing when we develop the software. Now architecture is decide based on the requirement and analysis of the nationalities of the software. And also during the development time some issues and problems are occurred at that time also we have to change the architecture.

4.1 Problem Definition

At the beginning, means while we define the architecture every one faces certain issues and problems. Some of the issues and problems come around while discussing and some of them are come during the implementation phase is half way done. These are the some issues those are came in implementation phase.

- Data Inconsistency
- Program or query take more time
- handle the relationship
- Cost of joining two or more table it takes more time because each and every time table is being referred.

For the Architecture there are several point those also taken care during the time of implementation.

- To convert the year format for more accurate result to start date and end date format.

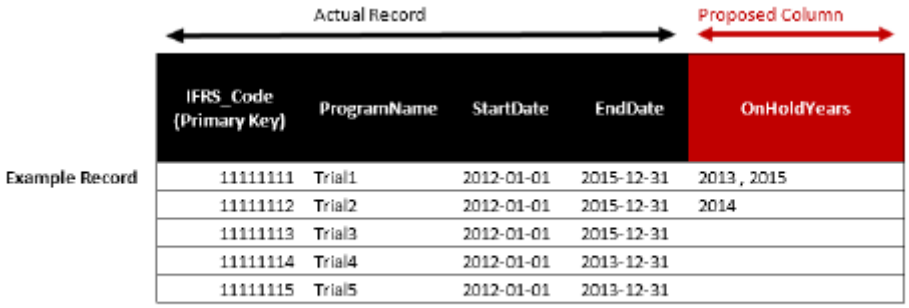


Figure 4.1: Example Table for onhold column

- Analyze Unique key means Primary key like some table have employee id, Program id , etc,.
- Create column to differentiate which tool have created the record.

4.2 Issues or Problems Faced

There are some problem face during the time when program is shutdown for some interval of time and after that it was again start. There are several ways to handle this scenario:

- Make one table that contain this type of program.
- Also we make a column in to the program table like holding_year which contain the holding year.

After above changes we have to modify the queries and check the nationalities of the software.

4.3 Retrieval Feature

For the retrieval query we have thought of the following modifications. Following points defines about the way we thought of our retrieval query would be. Below is some important points:

- Select record where year is between the start date and the end date.
- Year should not be present in onhold years.
- Check weather program belongs to Budget tool.

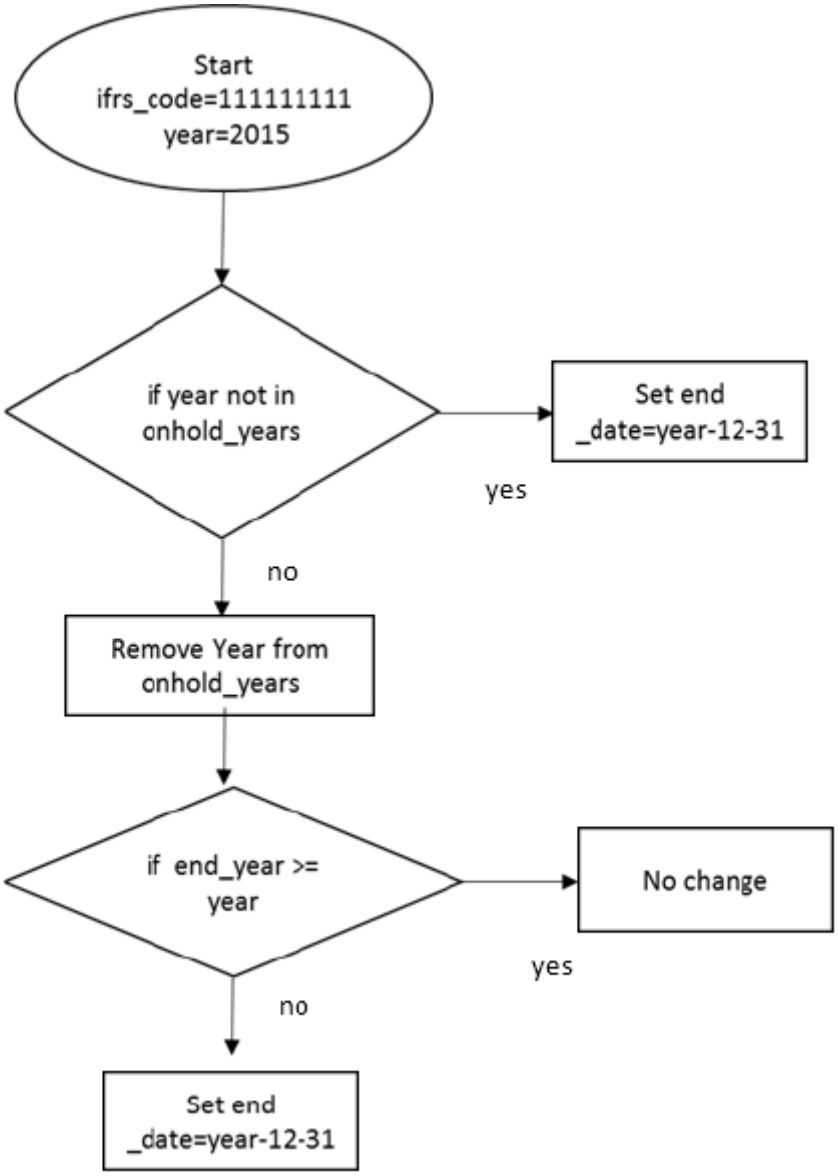


Figure 4.2: Add existing Parent Child node link

4.4 Add Existing Feature

Add existing feature can be best understood with the help of the example. For example: Add existing record for 1111111 in 2015 given in the below Figure 4.2: Add existing Parent Child node link.

4.5 Effect on deletion process

Delete record can also be understood with the help of the example. For example:Delete record form 11111112 in year 2013 given in the below Figure 4.3: Deleting Parent Child node link

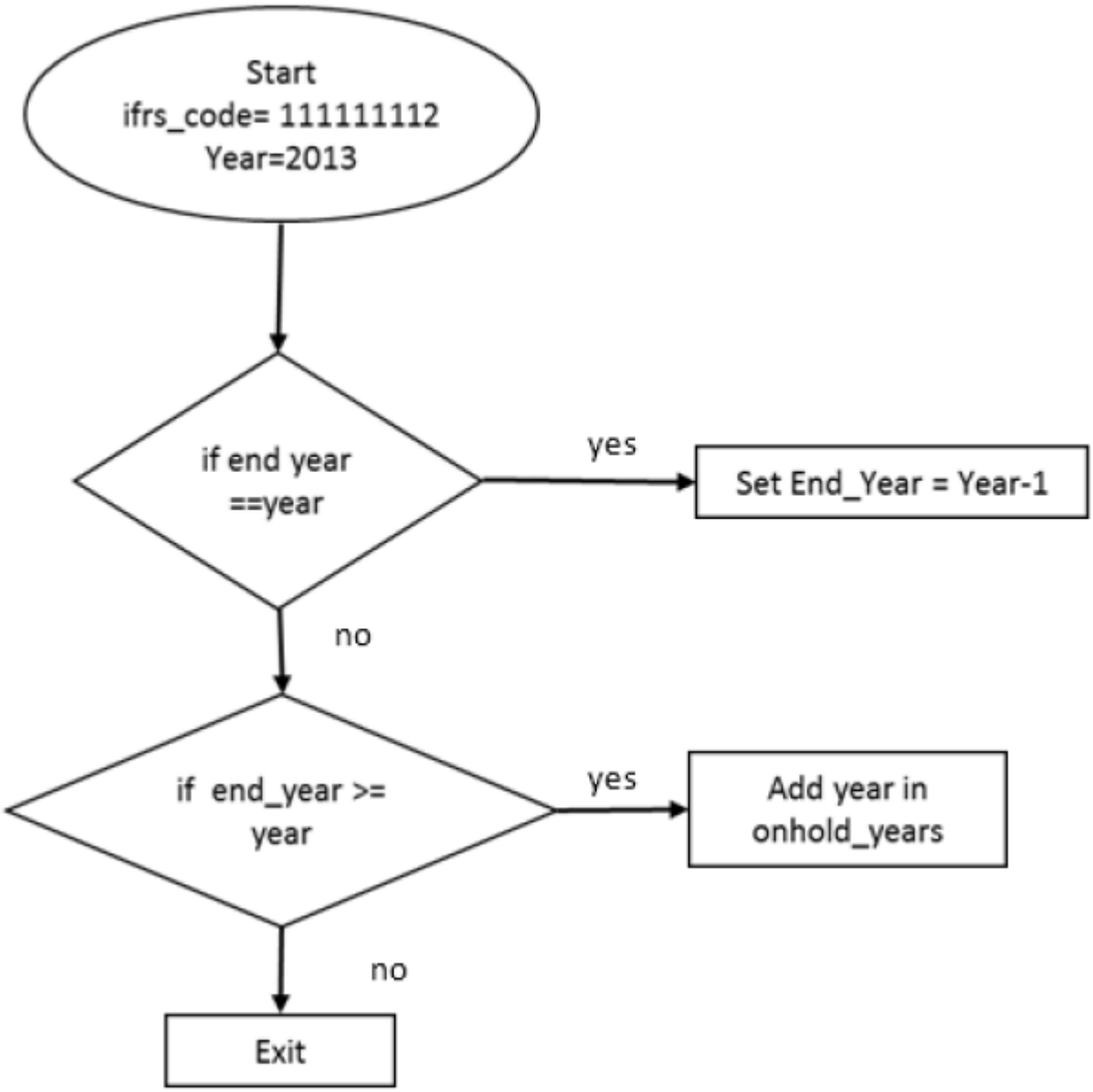


Figure 4.3: Deletion process of parent child link

4.6 Owner Column in Database

A need was there for introducing the new field in the database as to define the owner of the program. So that its defined which user has created what. For more owner detail one can refer Chapter 6 : Budget Dependent tools

- Previously before merging two table relationship was handled by the way of joining
- Now it became mandatory to define the name of the tool creating the program
- Parent program was created by Budget Editor and child program was created by TLS.

Chapter 5

Other Tools

5.1 Introduction

Certain tools are dependent to each other either via direct , indirect, one way or may be in bi-directional way. Dependency of one tool to another tool is common in organization.So here are some tool those are dependant to Budget Editor tool. And their is one tool that provide the web service to Budget tool.

The major tool those are dependant on Budget Editor:

- Time Logging System: The report of the budget editor is used by this tool, as the TLS analyses weather the prediction done by budget editor was accurate or not and if its not accurate then how much of the prediction gone wrong and all such prediction is done by the TLS. Thus budget provide certain web-service to the TLS for all such analysis to be done.

- Schedule Database: This tool is not dependent on budget in-fact the Budget editor is dependent on the SDB for the soc list. This is to be used for the products column drop-down so that it can define the full data. Also budget creates certain required soc list that is been the new requirement for the present year. Then budget can use the data whenever needed.

Chapter 6

Conclusion and Future Scope

6.1 Conclusion

The report contains the data about the Data governance using Budget Editor.And also it contain the technical part of the webservice,MySQL workbench and Visual basic Application.

The Big Organization require the automation because by the automation we save our time actually the thing like maintain the record and many more like these tasks are not done manually.It saves our time and its basic need for every organization.So implementing these type of automated tool for every projects by every teams within an organization become transparent and easy to manage.

It is mandatory for every organization to maintain such tool for easy handing of the task. By this one cannot waste his time to calculate the process.This Budget tool help to automate these things and handle this such a easier way.

6.2 Future Scope

The Budget tool is used by organization for many years and every time enhancement as per client requirement.

Several team are depend on this Budget so every time new requirement come it's useful to every one and taking the tool next level.

As the tool is used by thousands of the ST employees from India and the Outside India therefore the tool has to maintain some standards. And thus every time there is a scope of improvement.

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