

## Generation of MIS Report Using Data Warehouse

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**Abstract**— MIS reports are used as decision support systems for higher Management in hospitality industry. Manual generation of MIS report is a time consuming task which can lead to many human errors and excessive calculations process.

The main objective of this research is to develop an automated system for generation of MIS reports, using data mining and data cleansing technique with best suitable OLAP data modelling approach. It can be used for better budget prediction which can help to run the business in good financial shape. It also helps reducing error and optimizing the operational cost in better way.

The MIS report will be generated on the low-level accounting data which has day to day transaction linked to each GL accounting code. The report will display the Actual amount for each particulars (report lines), along with budgeted amount.

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### I. INTRODUCTION

The purpose of this project is to draw a clear picture of financial status for any hospitality industry, which can help a Management team to take appropriate decision to run the business smoothly. MIS report can help for better future budgeting and also guide the organization for better prospect. Most of the time the MIS reports are created manually by financial experts. This manual intervention can result in unexpected human error, which can lead to unhealthy business decision for any organization. Automated MIS can overcome these issues and provide a better automated solution to generate the MIS report. Since the generation process is automated, it can avoid any human error and will always produce the correct result, which is very much beneficial for management and team can go in right direction. MIS report acts as a decision support system as it provides the Monthly summary data on report level out of low level accounting data. This management information system report is used by upper management to analyse the business performance by looking at current summary level data and comparing the same with budgeted data, which is again available in same report.

In our current scenario, the existing Hospitality industry (XYZ) is using third party software OPERA as a Hotel management system. OPERA is an OLTP system which record day to day transaction for this industry. This system generates monthly GL data on granular accounting level in a big flat file. Other ERP software like SAP, PeopleSoft have inbuilt module to generate different MIS reports, but as of now

OPERA system doesn't have this functionality so it is done manually in most of the hotels.

The tools that will be used for creating MIS Reports are Microsoft SQL Server, SSIS (SQL Server Integration Service), SSRS (SQL Server Reporting Service). Design of Datawarehouse for MIS Report is done using STAR schema modelling. ETL process will be used for extracting the data, transformation of data i.e. Data cleansing, Aggregation and Calculation. Once data is loaded in to Staging area, ETL tool will be used for data cleansing and various calculation/aggregation and final data to be loaded in respective FACT and Dimension table. After this step business formula will be applied and fact table will be updated with respective calculated values. Report will be generated using SSRS tool. So that report that are generated will be very helpful for predicting the financial budgets, comparing between previous month and current month status, as well as comparative analysis for yearly data can also be done using ytd (Year To Date) values. Roles and responsibility involves creation of various Dimension and Fact tables. SSIS tool will be used for ETL process and SSRS will be used for reporting process.

### A. AIM OF THE PROJECT

The software product "GENERATION OF MIS REPORT USING DATAWAREHOUSE" will be a system that will generate monthly reports using data cleansing, data mining techniques within a proper data modelling. This software can be used to calculate actual amount of various financial transaction for the given month, and also can be compared with

budgeted number. It will effectively reduce the unexpected human error and also reduce the processing time drastically.

## B. SCOPE OF THE PROJECT

This software will improve the efficiency. The MIS report generation using Data warehouse project is report generation software with the help of which finance manager or any authorized user can generate MIS report which can help the top management to take correct decisions to grow the business in right direction. Every user has their own profile and can have access with given login to the system. As various reports are generated this will be very helpful for predicting the financial budgets, comparing between previous month and current month status, as well as comparative analysis for yearly data can also be done.

## II. LITERATURE SURVEY

Oracle hospitality

Oracle hospitality is the brochure of oracle, in this states a opera cloud Opera cloudbrings to the OPERA Software suite that leading hotels & casinos relies on for year to manage properties hotel operation and distribution. But it provides only provides check-in, check-out and does not provide financial budgeting.

Management information systems and business decision making: review, analysis, and recommendations

Management information system and business decision making in these Comparative figure sale for one week or month and the next project revenue figure based on new product sales assumption but Different situation call for different decisions to be made MIS theorist since same MIS tend to not be adaptable.[1]

Proposing a Conceptual Readiness Assessment Model of MIS/IS Deployment in Manufacturing Companies

Proposing of conceptual readiness assessment model of MIS deployment in organization is working on model that was tested using the results obtained by the case study conducted on an auto parts manufacturing company. But in this Assessment done for Mehr Campus Corporation indicates the company readiness for installing and implement MIS have not reaches to acceptable and standard level. [2]

A Proposal for Using Parallel Flows with the Aid of DSS in ERP Projects

Proposal for using parallel flows using the Aid of DSS in ERP Project is describe A new method to create parallel flows that make different use of DSS in ERP System. But in this Data flowing from parallel system is not accurate that can be consumption error of wrong data and it might result in wrong input data for MIS system. [3]

The signification of management information system for enhancing strategic and tactical planning

The research examined whether the selected Financial institution of Bahrain varies so as to use of MIS leadership of decision making for strategic and tactical planning purpose. But it compares decision between top level (Strategic) and mid-level (tactical). [4]

## III. PROBLEM DEFINITION

Currently the financial information (data) is available at different location which is very difficult to consolidate for any analysis and Business decision. MIS report can give vision of all the financial data at common location, which would help Management to take the proper decision and action based on history data.

In most of the industry where OPERA like systems are used, they have to create these kind of MIS report manually, which lead to lot of unexpected human errors and it can could be time consuming task as well. Automation of this report generation can help Hospitality industry in a big way and help management to take proper decision and any corrective action as needed.

We are creating the MIS report using ETL tool – SSIS & reporting tool - SSRS. This will automate the MIS process and will avoid any human errors. Generation of reports take a lot of time and automation of this will make the data available on a single click. Previous history reports can also be accessed at any given point of time via this system.

## IV. DESIGN & IMPLEMENTATION

### A. Design

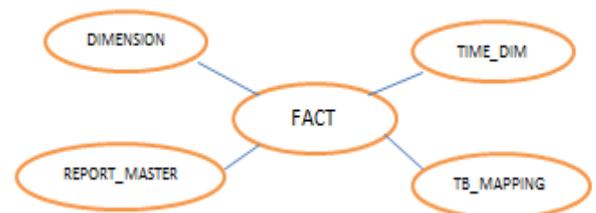
#### 1. Staging Area: Staging area is used to stage the source data without any transformation.

Stage\_tb\_fie is created to stage the source file coming from Opera system to store it as is.

**Budget table is created to stage the monthly budget data.**

#### 2. Dimension modelling:

**Star Schema is used to model this data warehouse.**



**Dimension table:**

**MIS\_DIM is use to hold the attributes of report particulars.**

**Time\_DIM is used for storing time dimension on month level as per requirement.**

**TB\_MAPPING is used to define the aggregation logic dynamically.**

**FACT table is used to store all the fact data.**

A database has been designed with different tables each used for different purpose.

While designing the database we used star schema.

Table Stage\_tb\_fie is created in which the input file is loaded.

Table Report master has been made with attributes Report\_code and Report\_name. In this all the reports are present of which MISreports haveto be generated.

- Table dimension has been made with 7 different attributes. Data in the dimension table is loaded ones using SSIS (Sql Server Integration Services).
- Table budget has been made with 5 different attributes including Budget Month and Budget amount which will be used for making budget related information.
- Table Tb\_mapping is created in which mapping is done according to Department and account.
- Table Formula\_Mapping is created with 10 different attributes in which all the formulas are applied according to the report description.
- Table Fact is created and it is loaded dynamically using queries and joins.

### B. Implementation

The system has been implemented using Sql Server Management Studio, Sql Server Business Intelligence Development Studio. The main part of our implementation was concentrated on database pre-processing and attributes selection.

Star schema is used for designing the database. The data in the database is loaded using Sql Server Integration Services (SSIS) .To load the data in the fact table join queries are written and the data will be loaded automatically when the input file will be present. For the calculation of actual amount year to date amount pl/sql code is written.

Input files will be provided by the opera system and our software will help to generate automated MIS report with all the required calculation and logic.

Reports are generated using Sql Server Reporting Service. Login id will be provided to all authorized users that is the accountant and manager of the hotel with the help of which they can access the reports. In the generated reports drop down will be provided so that they can choose a particular report and comparative analysis can be done. Reports can also be generated using pie charts so that better understanding of the system can be done.

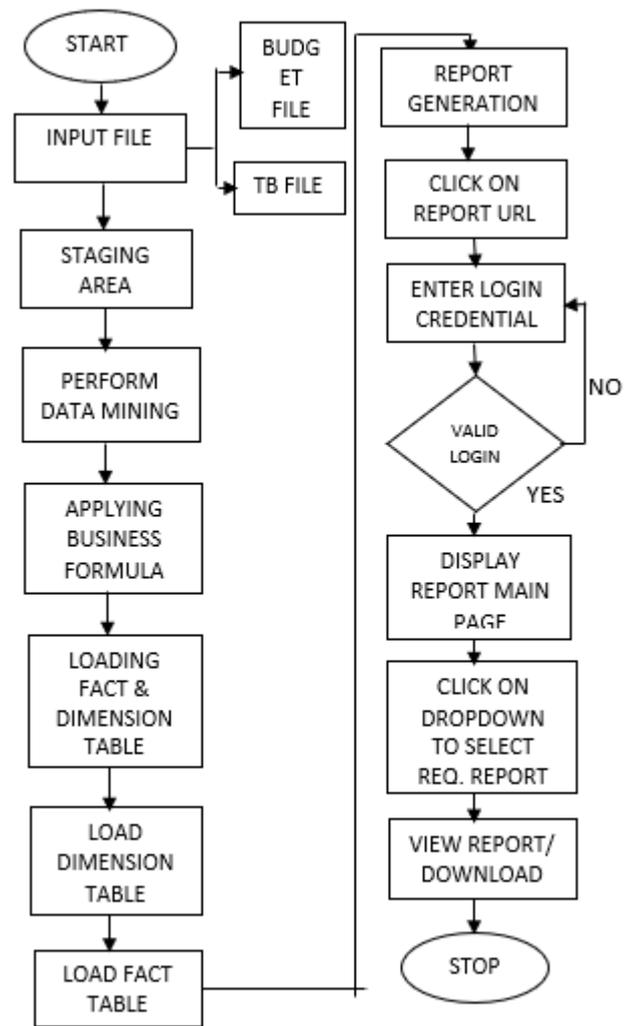


Fig1. Project Flow Diagram

### C.Results

BUDGET AMT	ACTUAL AMT	PRINT Part Line Desc	YTD ACTUAL AMT	YTD BUDGET AMT	TIME PERIOD
54311303.55	51909808.31	ROOM SALES	112130275.10	109784586.01	JAN 18
0.00	-63941.08	LESS: ALLOWANCES - ROOMS	-145454.94	0.00	JAN 18
0.00	0.00	#####	0.00	0.00	JAN 18
54311303.55	51845867.23	NET SALES	111984820.16	109784586.01	JAN 18
0.00	0.00	DEPARTMENTAL EXPENSES:-	0.00	0.00	JAN 18
8652740.59	8238906.41	SALARIES AND WAGES	16119919.61	17305481.18	JAN 18
0.00	25049.60	EMPLOYEES HOUSING	49486.20	0.00	JAN 18
211511.41	125345.00	SALARIES OVERHEAD	330029.00	423022.82	JAN 18
820144.68	718461.98	PTRE	1426745.97	1640289.36	JAN 18
9684396.68	9107762.99	TOTAL PAYROLL & RELATED EXPENSE	17926180.78	19368793.36	JAN 18
0.00	0.00	#####	0.00	0.00	JAN 18
0.00	0.00	VARIABLE EXPENSES	0.00	0.00	JAN 18
84078.99	99259.52	CLEADING SUPPLIES	179075.45	167618.70	JAN 18
1603295.84	1520817.09	GUEST SUPPLIES	3043173.70	3196308.15	JAN 18
62455.11	61897.21	PRINTING AND STATIONERY	134779.99	124509.64	JAN 18

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## V. CONCLUSION

We implemented the model using Sql Server Management Studio, Sql ServerIntegration Service, Sql Server Reporting service. MIS report project helped to avoid human errors in the report and the time consumption has been reduced very drastically. Management team can use this report to take appropriate decisions for growing business in positive direction in this competitive market. Manual calculation, human error, risk of losing data is reduced. This report will help financial managers and accountant to do comparative analysis on previous year data as well as previous month data with the help of this proper budgeting decision can be made for various departments. Budgeting decision can be done for decision support system.

## VI. REFERENCES

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