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MS EXCEL AS DATABASE FOR WEB APPLICATION

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ABSTRACT

As a Telecoms Technical manager, your job is often about speed. Make a report faster. Prepare a presentation faster. Forecast usage faster. Analyze a problem faster. Create a budget faster. See the pattern You'll use Excel to create models in all these examples; make assumptions and build them into those models. Oft How do you do that? What's your style? Do you work on one case to completion, then copy/ paste to start the next case. If you want to impress your boss and propel your career, learning how to properly model different use cases is an indispensable technique. A key trick to effectively modeling different use cases is called Abstraction. Abstraction is also an important trick for automating your dashboards and recurring reports. en, there will be several use cases for you to model. Read on to learn how to add abstraction to your models. I'll show you 3 techniques for using abstraction. And I'll do it by building on another Excel Telecom Trick which I showed you earlier, the 2-Color Chart Series. You can download my workbook to follow along with this article. I refer to the workbook throughout the rest of the article, so having it to read along might help you.

1. INTRODUCTION

Microsoft Excel is a spreadsheet program used to record and analyse numerical and statistical data. Microsoft Excel provides multiple features to perform various operations like calculations, pivot tables, graph tools, macro programming, etc. It is compatible with multiple OS like Windows, macOS, Android and iOS. An Excel spreadsheet can be understood as a collection of columns and rows that form a table. Alphabetical letters are usually assigned to columns, and numbers are usually assigned to rows. The point where a column and a row meet are called a cell. The address of a cell is given by the letter representing the column and the number representing a row.

2. PROBLEM STATEMENT

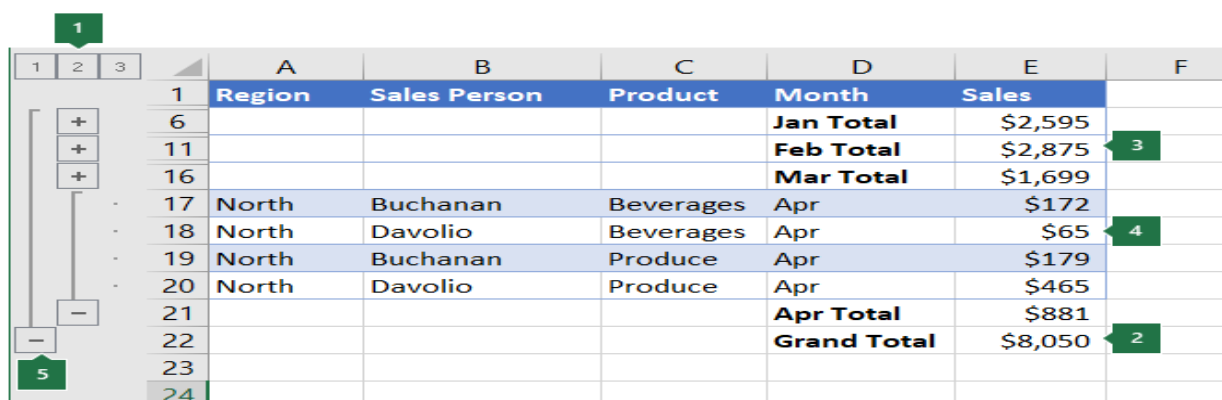
The problem that exists with excel and data science projects is the lack of an easy way to present the results (a.k.a production deployment). For an excel file to be presented, you will either need to link it with visualization tools such as Power BI, Tableau, or PowerPoint. Whereas for a data science project to be implemented, you will need to implement a backend server such as Django, Flask, and a front-end UI such as React and Vue.js. These complications make data sharing with excels and data science projects extremely BORING and TEDIOUS. Luckily with the help of Streamlit, we can easily create an interactive web application out of Excel spreadsheets and deploy data science projects easily.

3. LITERATURE SURVEY

A technique for performing Monte-Carlo simulation using an Excel spreadsheet has been developed. This technique utilizes the powerful mathematical and statistical capabilities of Excel. The functional reliability block diagram (RBD) of the system under investigation is first transformed into a table in an Excel spreadsheet. Each cell within the table corresponds to a specific block in the RBD. Formulae for failure times entered into these cells are in accordance with the failure time distribution of the corresponding block and can follow exponential, normal, lognormal or Weibull distribution. The Excel pseudo random number generator is used to simulate failure times of individual units or modules in the system. Logical expressions are then used to determine system success or failure. Excel's macro feature enables repetition of the scenario thousands of times while automatically recording the failure data. Excel's graphical capabilities are later used for plotting the failure probability density function (PDF) and cumulative distribution function (CDF) of the overall system. The paper discusses the results obtainable from this method such as reliability estimate, mean and variance of failures and confidence intervals. Simulation time is dependent on the complexity of the system, computer speed, and the accuracy desired, and may range from a few minutes to a few hours.

4. OUTLINE

If you have a list of data you want to group and summarize, you can create an outline of up to eight levels. Each inner level, represented by a higher number in the outline symbols, displays detail data for the preceding outer level, represented by a lower number in the outline symbols. Use an outline to quickly display summary rows or columns, or to reveal the detail data for each group. You can create an outline of rows (as shown in the example below), an outline of columns, or an outline of both rows and columns.



	A	B	C	D	E	F
1	Region	Sales Person	Product	Month	Sales	
6				Jan Total	\$2,595	
11				Feb Total	\$2,875	
16				Mar Total	\$1,699	
17	North	Buchanan	Beverages	Apr	\$172	
18	North	Davolio	Beverages	Apr	\$65	
19	North	Buchanan	Produce	Apr	\$179	
20	North	Davolio	Produce	Apr	\$465	
21				Apr Total	\$881	
22				Grand Total	\$8,050	
23						
24						

1. To display rows for a level, click the appropriate **1 2 3** outline symbols.
2. Level 1 contains the total sales for all detail rows.
3. Level 2 contains total sales for each month in each region.
4. Level 3 contains detail rows — in this case, rows 17 through 20.
5. To expand or collapse data in your outline, click the **+** and **-** outline symbols, or press **ALT+SHIFT+=** to expand and **ALT+SHIFT+-** to collapse.

5. SYSTEM ANALYSIS

System analysis in systems engineering and software engineering encompass a problem-solving technique that break down a system into its component pieces for the purpose of the studying how well those components parts work and interact to accomplish their purpose.

The field of the system analysis relates closely to the requirements analysis. Focuses on those tasks that go into determining the needs or conditions to meet for new or altered products, tasking account of the possible conflicting requirements of the various stakeholders, such as users.

System Development life cycle:

Systems Development Life Cycle (SDLC) is the most common process adopted to develop a project and not surprisingly, this project is following this model too. To be precise, a waterfall model is being applied. Waterfall model is a sequential model process where the input of a phase actually results from the previous phase.

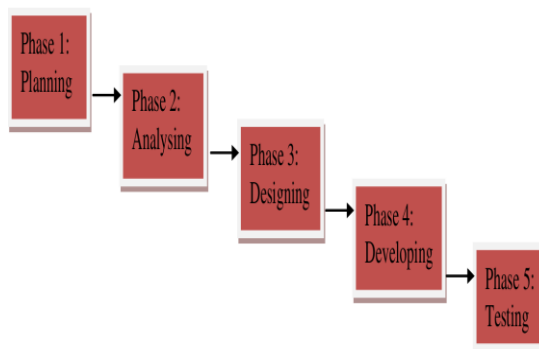


Figure 3.1: SDLC Phases

There are five phases in this model and the first phase is the planning stage. The planning stage determines the objectives of the project and whether the project should be given the green light to proceed. This is where the proposal submission comes into picture. After obtaining the approval, the next phase is analysis. Gathering and analyzing the system and user requirements is essential for entry to the design step.

With the user requirements gathering completed, there is a need to prepare the resources for the project. Be it software or hardware components, careful consideration and selection is to be taken care at this stage. The decision on the appropriate resources to be used is further elaborated under the subsections below. The next step is to design the system and database structure.

Results from the analysis and preparation that were concluded from the previous stage are put into action. With the user requirements in mind, the flow of the system is planned and the user interface is designed to suit their easy navigation needs. In addition, the number of tables, attributes, primary and unique keys of the database is listed.

After completing the design, actual coding begins. Databases are created and codes are written. Some of the codes required amendments and improvement to it so these are being developed at this fourth stage of the waterfall model. With the development completed, testing will begin. The codes and database are tested to ensure the results obtained are as intended. More time is spent on both development and testing stages because it is inevitable to have errors and issues and buffer time is allocated for troubleshooting.

6. IMPLEMENTATION

Implementation is the stage where the theoretical design is turned into a working system. The most crucial stage in achieving a new successful system and in giving confidence on the new system for the users that it will work efficiently and effectively.

The system can be implemented only after thorough testing is done and if it is found to work according to the specification. It involves careful planning, investigation of existing systems and its constraints on implementations, design of methods to achieve the change. Two major tasks of preparing the implementation are education and training of the users and testing of the system.

The implementation phase consists of several activities. The required hardware and software acquisition are carried out. The system may require the need to develop software. For this purpose, programs are written and tested.

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