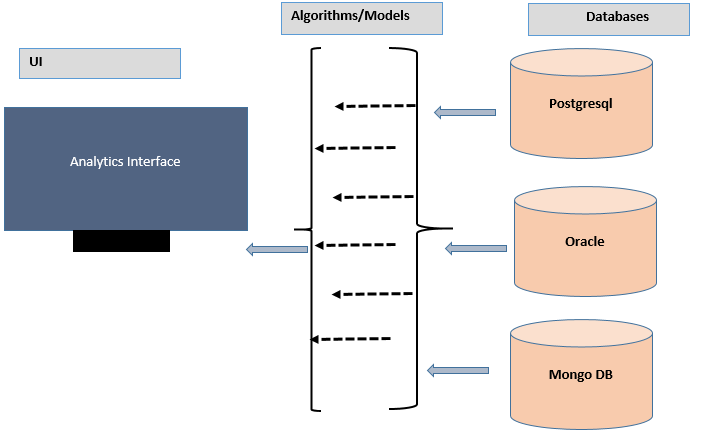
**NAME**

**COLLEGE NUMBER**

**Introduction**

**B**uiness information ysystems can be dedine as a set of untegrated set ofweb tools that consume data, anayse them and present the indights to an end user. Before proceededing here is the outline of the BI architecture:



The simple illustration of the BI architecture illustrates three items:

**The user intereface:** Is the scsreen view upon which the user sees and can make reports upon which all submitted querries and reports. The unser interface is the final product upon which the user/amanegment can make descsion sbased on the vsisble analytics as we shall see in the next step.

**The Alosthms and API/Moules:** The this part of the interfacetakes the data ffrom the datastores and anad applies models, algosthms and functions uport it toporidce the required iutput. Some of the required and usual statsistical models look for, counts, means, maximum, miniumum,low, avarages ad pernectile values. Other s inlucde limits, top countowunts and latest records. Furher after analysyis, the presentaon of this data in form of graphs, charts and sctter plots.Adcvanced methods in the process of integrating with the BI also incudes predcitie analytics where cerstainstsstiatstic mdoels like LDA, QDA, KNN, Arima and Linear regression methods are applied. This is so since organisatuions would alsways want to analyse and know the future of the data they are hilding. For instance, if its sales, the departmet would like to predict whene and how they are ogoing to be seeling in the neasr future and how this maaters imn their current business procceses as ana organisation.

**Databases:**

There are two types of databases that exist:

* Structured
* Unstructured Databases

Stuctured dtabses store data in in organised rows and clomuns in what we define as tables. The items in these tables are identified by primary keys as and foreign keys. Lets llok at a sample cutormer table below:

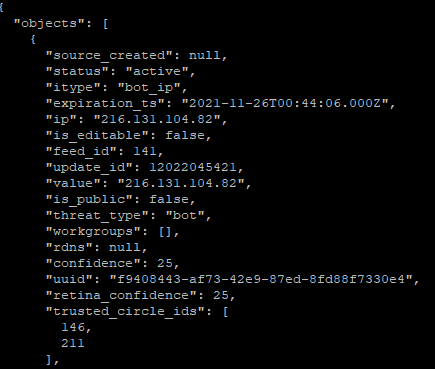
|  |  |  |
| --- | --- | --- |
|  |  |  |
| id | name |  |
| A54649 | Jeremy lans |  |
| REF763 | Rebbeca Ohms |  |
| YYE735 | Annet kieler |  |
|  |  |  |
|  |  |  |

The structured database above shows the unique records for a customer details athat are uniquely identified by a key. On the other than, we can ahave another table for sales that show the sales detaisl for the customer above.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Sales id | FOR KEY | Prod\_name | amount | Sale\_date |
| 9655 | A54649 | Jeremy lans | 6457 | 2021-11-08 |
| 5444 | REF763 | Rebbeca Ohms | 896974 | 2021-10-12 |
| 7864 | YYE735 | Annet kieler | 745338 | 2021-09-05 |
|  |  |  |  |  |
|  |  |  |  |  |

The two tables dientfied bove are linked by thir respective primary keys, a primary key could be a foreign key in another table. This element of identsifying records across structured datavsess in the BI is eseentatila bescause it will abe crycuial in oining tables and sharing the resultant outputs on the user interface during analytics.

Unstrcutuctured databases: on the other handdo not organise data in any specific tables, columns or rows. Instaed the data is stored in unstrcyrired rows and columns and can take any data type available in as source. Below is an example of an unstryctured data array that takes any data type.



**Literature Review**

In an article written by Negash and Gray (2008), prior to the year 2008, the term Busines Inteligmec majrly constituted crosssf cuntcional analyses of dataset cutting across the diifentte deprt,enta as a decson support tool. The terms data wharehouse and data mart were originaly conined to ferer to the sources of large trnasctional dta upown which analjuses would be drawn for management. These data sources provided real time analyses, queerirs and forcasting of events. According to Lee & Park, there xists a very thin line netweenm measurement of data and strategic planning in an organization. That systematic data analhysis and sound application of the web 2.0 there is needfor companies to significantly emply the use data analysis tools in order to measure stsreheci nosiness performance, predci and even leader others very well.This study finalkzed that the efficient use of business information systems, could also be used whenever the need arose to access kniwldge managent information systems. Moss and Atre (2003) state that that the benefits of having a Buisimmnes intelligemc applications exceed its limitatios by far. In however much ots not easier o quantify the benfits of such an application, the benefits have always been narrowed down and the user can always draw from the benfits finanxciallhy and be able to measure business impacts in quantifiables numbers. For nstance, uf a cmnany was loosing miliions because it was not able tp tie doen sales of a given product within a regin to ceratin cucstmers, then its easier to maange this with a BI application, where no data is left unanalysed and put on the atble for dcsion making.Somthing that os also notable about BI systems is the element of the thrd eye. Before BI systems were invented in the early 1980s, running SQL queries and commndas on single server databses, would result in erros in numbers and statatics that was noy easy for anyone else to notice except the data enegineer or peer data developer. This problem was however solved by havingalla effivient querrirs run on a asingle server and code optimization chekec for failures; this orginated from the fact that manaers and fellow BI users could observe nubers on the BI screens and still be able to critique them, bringing the elements fo the theird eye. Loshin (2012) wrties on some of the limitations and shortvomings of a typical BI application and in his papaers states that, some organizations ave experienced rs=estanace to some of these applications, making it difficult for the organisation to adopt such sysystems, on the pteerxt that the application shall render them jobless and unble to don their jobs effectively as required. However, focusing in a the finnaial sectors of the organization, comoanies have been more fosued than ever beforw ro make sense form their numbers. Managers need ot make sense from sales numbers, to know who is buying where are they buying from, how frequently do they buy, any related prodccts athey are buying and at what cots do they buy, whemn it’s the period of the day, week or month that they psurchase. Its whorthwhile noting that such qustiion scan be answered In 4 -6 lines of a code ruuning inside the server, the same reasn why again the BI is a smust for the banks, SMES and other finnacual departments.

**Part B**

**Data analytics and reporting**

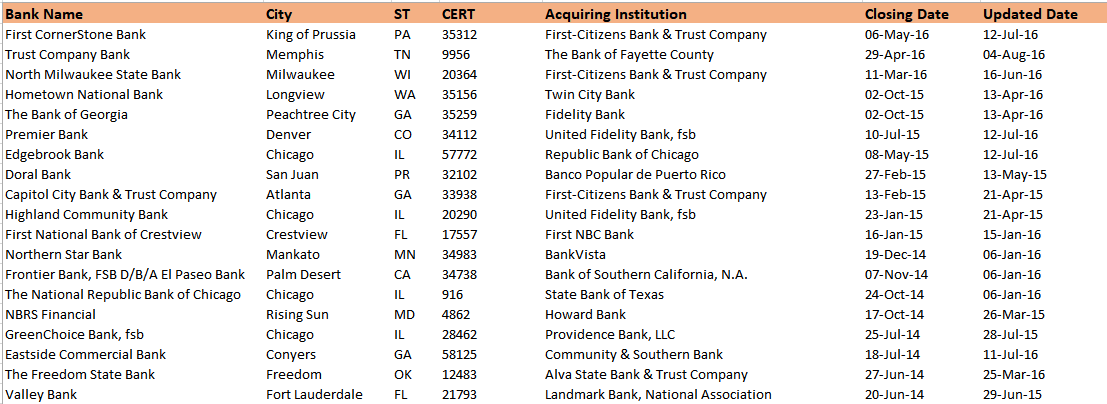
**Data dsecription**

For this particular analis, the reaasercher shall employ the finanacial datasets obtained at data.world <https://data.world/drew-atx/failedbankdata> this is a datset contanainng a list of banks with failed banks and the companies that aqcquited them and when susch an acquisition was done , the opening and losing of the respective banks.

Morever, the dataset consists of the bank name, the bank state loction, the state short code, the acquiring institution, the certifcte of the bank, the xlosing date and the updatd date.

**Data wrangling**

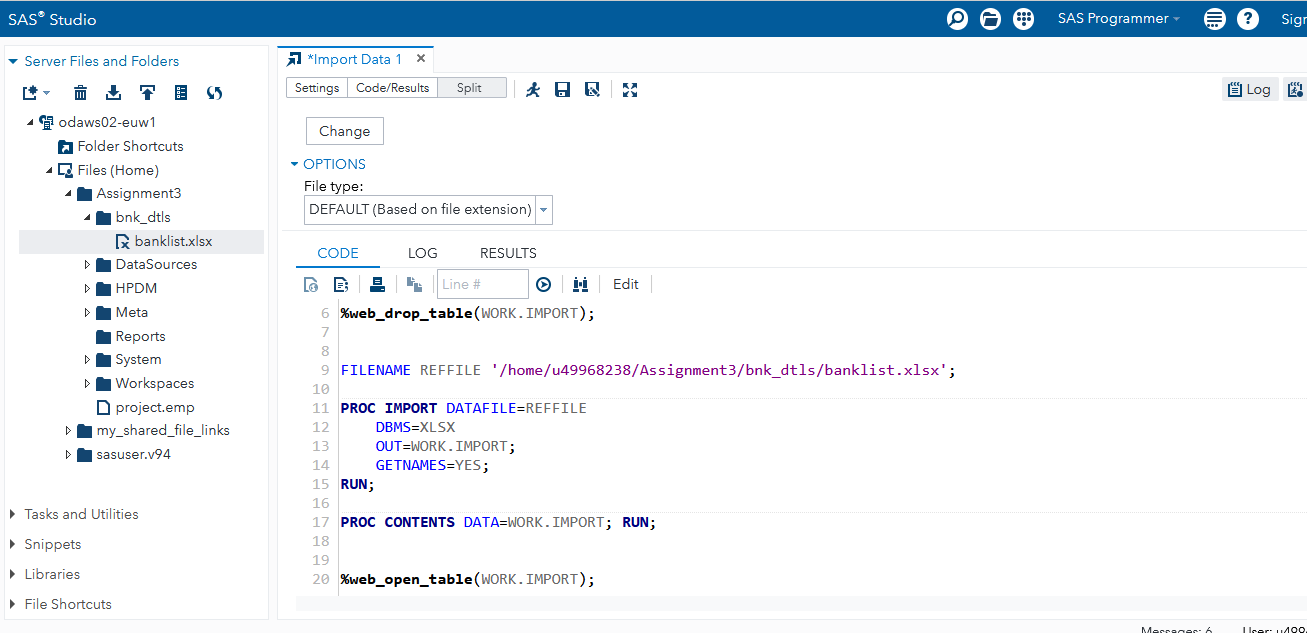
The next step in this dataset is to try and clean it byremoving any spaces, unrequired characters and values that are in misplaced columns of the datasets. Occasionaly, data warngling would involve renaming columns to match the required column attributes.A quick sneak into the dataset revealed the following:

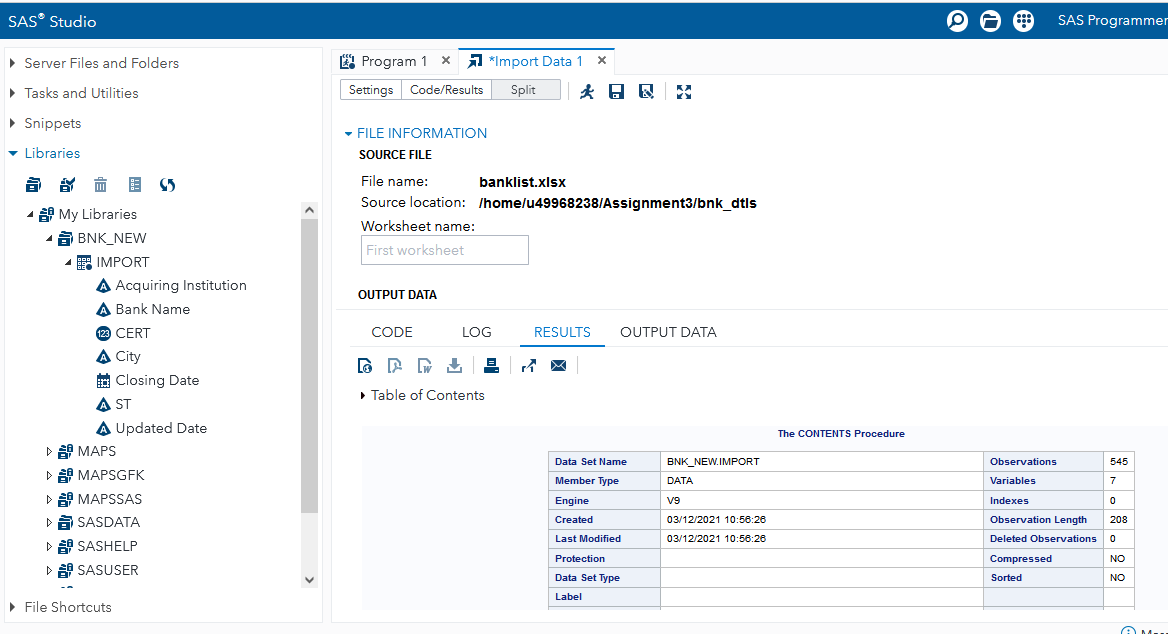


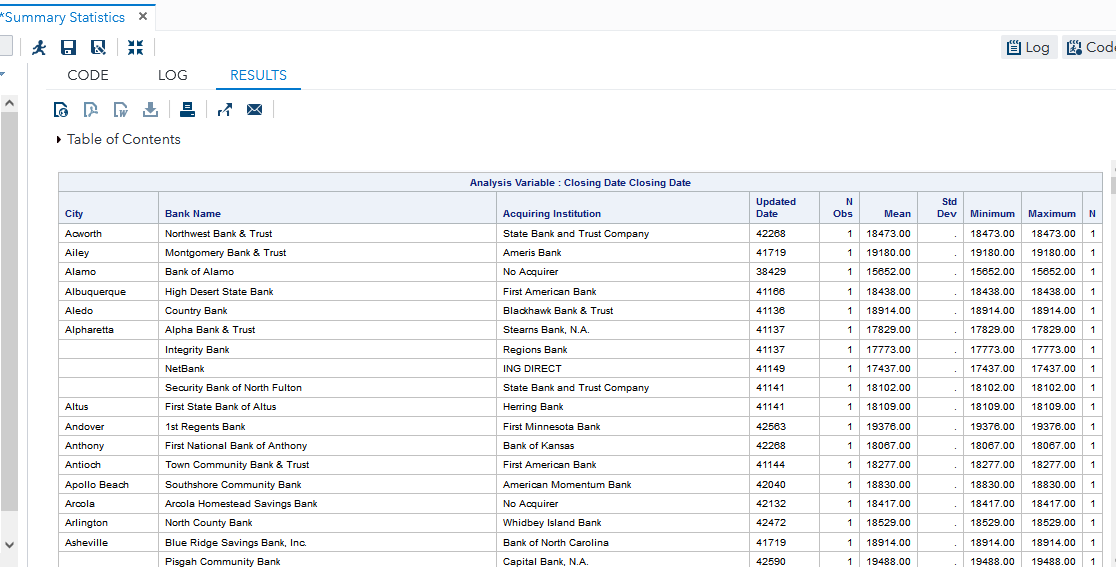
**Data analysis on SAS**

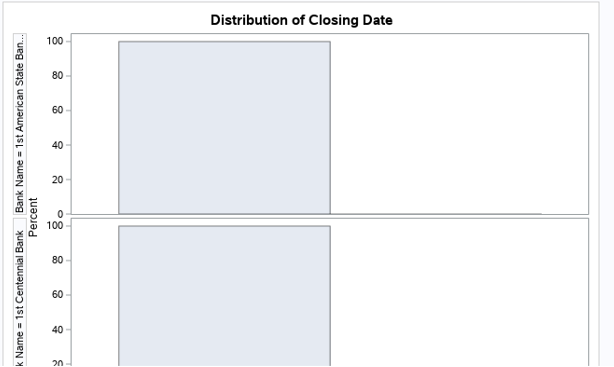
Prior to proceeding with data analysis on SAS objectives based on the above dataset shall be established:

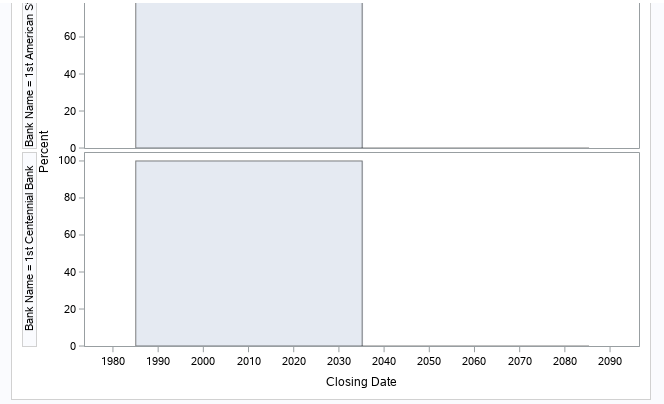
* To determine the frequency of occurrence of the the failed banks
* To determine the trend of failing banks
* To determime which cities had the most failures
* To determine duration upon which most banks were failing
* To fetermine If there is a correlationship between the failing bansks and their years
* To forecast any potential failures predisposed to these banks in the near future
* To predict which state is most likely to have a failing bank in the near future











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Negash, S., & Gray, P. (2008). Business intelligence. In *Handbook on decision support systems 2* (pp. 175-193). Springer, Berlin, Heidelberg.

Lee, J. H., & Park, S. C. (2005). Intelligent profitable customers segmentation system based on business intelligence tools. *Expert* systems *with applications*, *29*(1), 145-152.

Moss, L. T., & Atre, S. (2003). *Business intelligence roadmap: the complete project lifecycle for decision-support applications*. Addison-Wesley Professional.

Loshin, D. (2012). *Business intelligence: the savvy manager's guide*. Newnes.