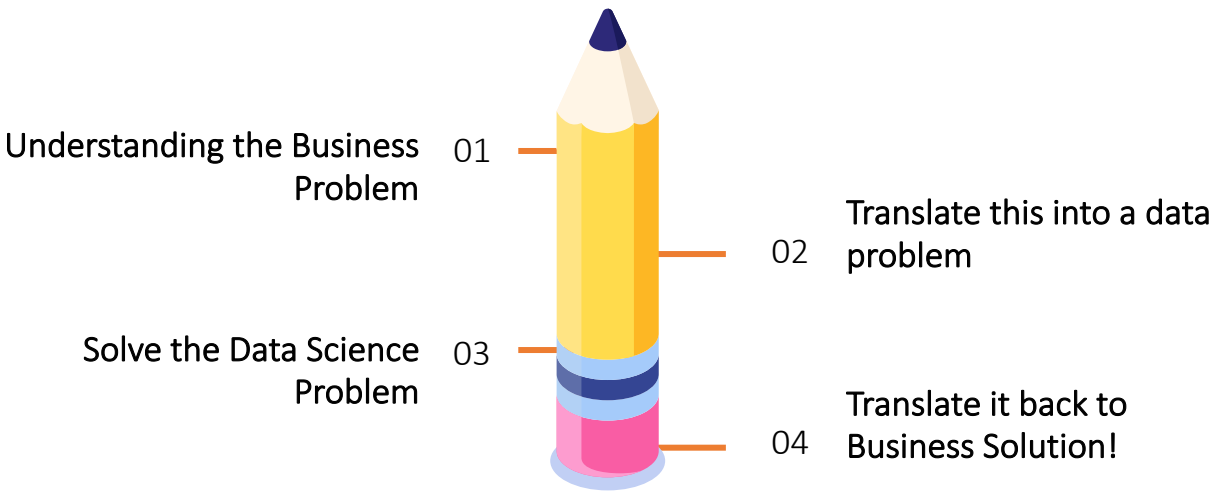
Framework to generate Business Insights

The art of solving analytics and data science problems involves 4 steps. As an expert data science professional, you are expected to master all 4 steps.



DSBA is a techno-functional program and though our primary focus in most of our lectures is on step 3, we should not lose sight of other equally important steps. Through this document we intend to share with you some frameworks and strategies which can be deployed specifically for these remaining steps. You can keep these in mind as you work on the academic projects in the course of the program and even in your current work profile.

Please note that solving data science problems is as much as an art as it is science. There is no one correct method to solve these problems. Please feel free to be creative in using these techniques or creating some of your own.

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Understanding the Business Problem

This is the first step of any problem and perhaps the most important. Unless we have clarity of what is that we are trying to solve, we will never be able to come up with effective solutions. There are some standard frameworks in the industry (like PESTEL, SWOT etc) to help understand and correctly frame the exact business problem. As a business leader, you will also be interested in data landscaping which simply means what are the various data points available at your disposal.

This step will be important when you will work on real world projects at your workplace. Most of the academic projects that you will work upon in this program will have clearly defined business problems. Some of the focus areas during this phase could be as follows

Isolate your Business Domain

Identify the business problem/case study you are working on. Isolate the domain or field it is from. Think about what needs to be measured which is important for that business.

Ask Right Questions

Frame right questions which you would ask the stakeholders as a Data Scientist- both who gave you the data and on whom/what this will be used for. Answer those questions for yourself since you cannot get the answers right away

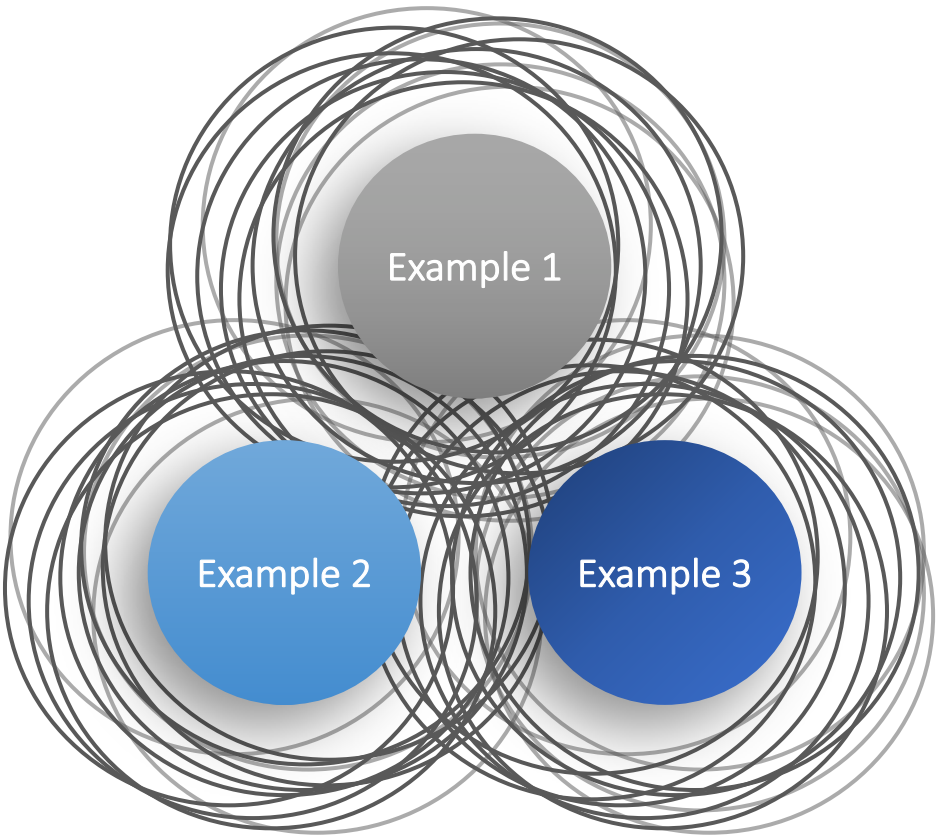
Gather Context of Business Problem

Get the context of the business problem/ case study you are working on. You can ask questions like what do these numbers tell me? Does it really affect the business? How was the data collected? Which variable is important? Am I missing out on any already established variable in context to this business problem?

Translate this into a Data Problem

Once you have understood the business problem, the next step is to frame it into a data science problem. This clarity can emerge only once we have deep awareness the problem. In this phase we need to ask questions like:

Is this data time dependent or time independent?



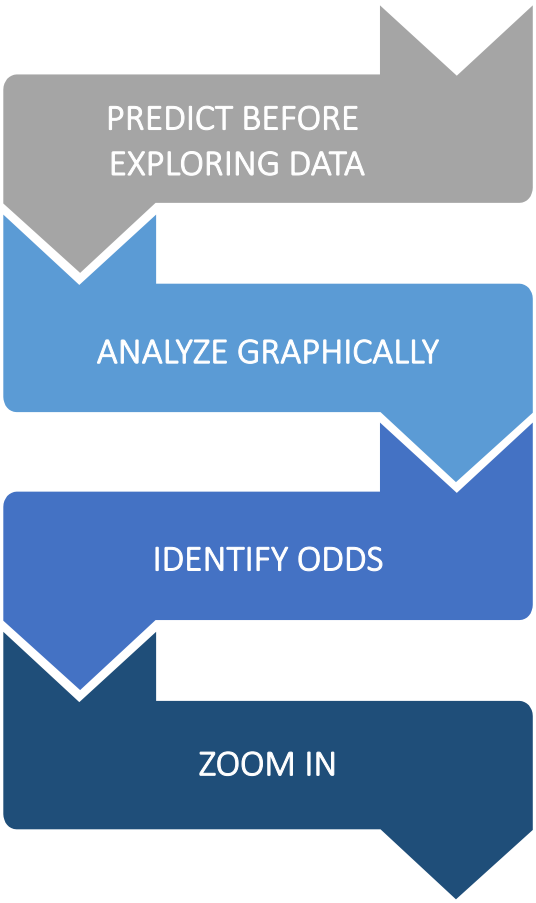
Are we interested in understanding basic patterns or should we dig deeper and build models to make predictions?

Are we aiming for maximum accuracy or minimizing Type 1 or Type 2 error?

Solve the Data Science Problem

Once we have understood the business problem and framed it into a data science problem, the first step as a data scientist is to explore the data to generate some insights. An “insight” can be thought of as anything that increases your understanding of how the system actually works. It bridges the gap between how you think the system works and how it really works.

British Economist Ronald H Coase has rightly said, “If you torture the data long enough, it will confess to anything”. During the exploratory phase we need to torture the data. But before that there is one essential step that can be practiced



Before you explore the datasets, write down a short list of what you expect to see in the data: the distribution of key variables, the relationships between important pairs of them, and so on. Such a list is essentially a prediction based on your current understanding of the business problem and common sense. If after the analysis, you find there are any contradictions to your initial predictions, you can investigate into it again.

Now analyze the data. Make plots, do summaries, build and tune models, check their performance, whatever is needed to see if it matches your expectations

Is there anything that doesn’t match? Anything that makes you go “That’s odd” or “That doesn’t make any sense.”?

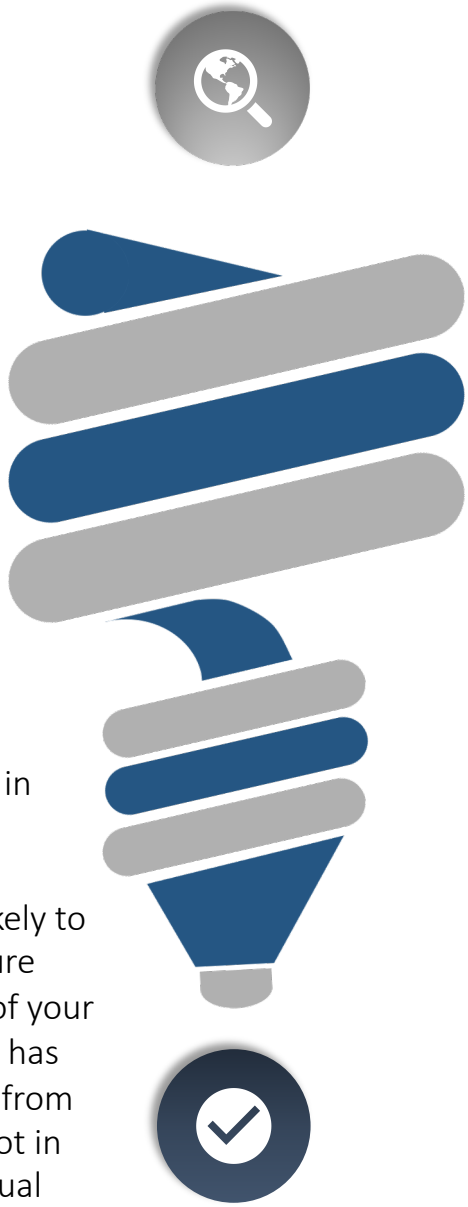
Zoom in and try to understand what in this business problem statement, is making that weird thing show up in the data like that. This is the critical step. These should be data based assumptions and not only assumptions from past experiences. This is what gives the business insight and increases your understanding of the solution to the problem.

Once you are done with the exploratory phase, you have built the ground for more advanced analysis and data modelling techniques which are covered in the program.

Translate it back to the Business Solution

BREAKING YOUR OUTPUT

You have an output as numerical data or visual data, go back to the question you wrote the code for in your Jupyter Notebook and tie it back to the problem statement you are working on. Read what is it based on- identify who is the end user, who will it impact, what/who is the dataset based on.



MAKE IT SIMPLE

Articulate your insights in easy to understand and simple language. If it is complicated, it is not likely to be considered. Make sure while creating reports of your analysis, it is one which has inferences and insights from the outputs you have got in the Python codes. A visual representation of your findings along with a description of your understanding of it is an excellent way to report your analysis.