

# Criterion A

## Defining the problem:

"*JB Topografia*" is a small business which works in the area of Topography. This business has recently been having issues with their profit. Their topography services are worked on by 4 contracted workers and 1 other worker called "Julio Baptista", which is the owner of the business. Originally, JB (Julio Baptista) operated as a freelance topographer. His service was classified as one of the highest tiers of quality and was also one of the most expensive in the market. Due to a high income of requests for jobs, he saw himself obliged to contract 4 workers. Which led to the creation of the business *JB Topografia*. Although all workers were functioning, a reduction in price per service was noticeably occurring, from 350€ per day, all the way to 200€ per day. This is due to the personalization and high quality of service in "*JB*" as a freelancer, which contracted workers were not skilled enough to succeed in. Thus, clients were not willing to pay past prices. *JB Topografia* has approached me in order to help with a business decision. *JB Topografia* has 3 main options as a solution, but they need help analyzing statistics and forecasts. The business agreed to meet me for further discussion on this topic, for me to possibly create a website or software to assist.

## Rationale

I will be creating a website for *JB Topografia*. This website will mainly consist of various business analyzing and decision-making tools. I have decided to do this since I have always been highly intrigued by the area of business and economics, as well as working with a business. My product should, in its final form, assist *JB Topografia* in creating a solution to their problem, as well as helping other businesses in the future.

After conducting a meeting with the owner of *JB Topografia*, he explained to me in good detail what data he had already acquired when it comes to forecasts and past market data. With this JB requested that I program at least 2 tools to analyze data, and 2 tools to assist in decision making. I was given total freedom over what these 4 tools could be, as long as they functioned properly to a certain extent. I was also told that the website should be extremely simple, and since no consumers will be visiting it, can be extremely bland. Since I will be utilizing only Python and HTML, this is great since it is not easy to have an advanced looking aesthetic without other languages. My website in general will have a main page where *JB Topografia* and other businesses will go into first, and then 4 different options for the 4 different tools will appear. When entering one of the tools, input boxes will show up, with basic data requests. After submitting, the website will take you to the final product, consisting of a data, graph, or diagram.

The 2 decision making tools which I chose were a Decision Tree, and a Force Field Analysis. The force field analysis is a straightforward diagram which is utilized to represent different pros and cons for a business decision. A decision tree is fairly simple but extremely important. It consists of various branches which represent business decisions, which will then analyze the decision depending on cost, profit, and chance of success. It can be seen below:

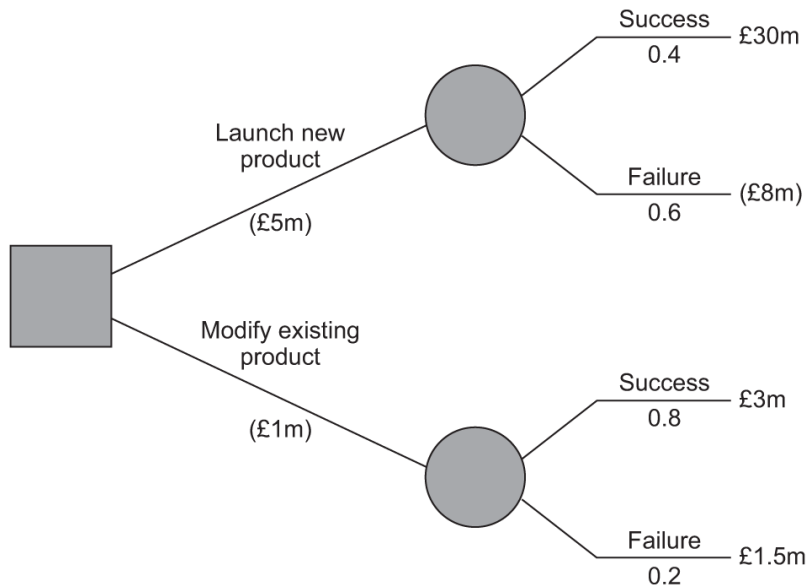


Image by aqa.org.uk

The 2 business analyzing tools which I have decided to program is a break-even analysis graph, and a simple graphing tool. The graphing tool will simply consist of an x and y diagram used to predict future values of any desired variables. While the break-even analysis graph is a more advanced x/y diagram which is utilized to recognize when a business decision will break-even. Break-even is when the profit is equal to the cost. Break-even analysis graph can be observed under:

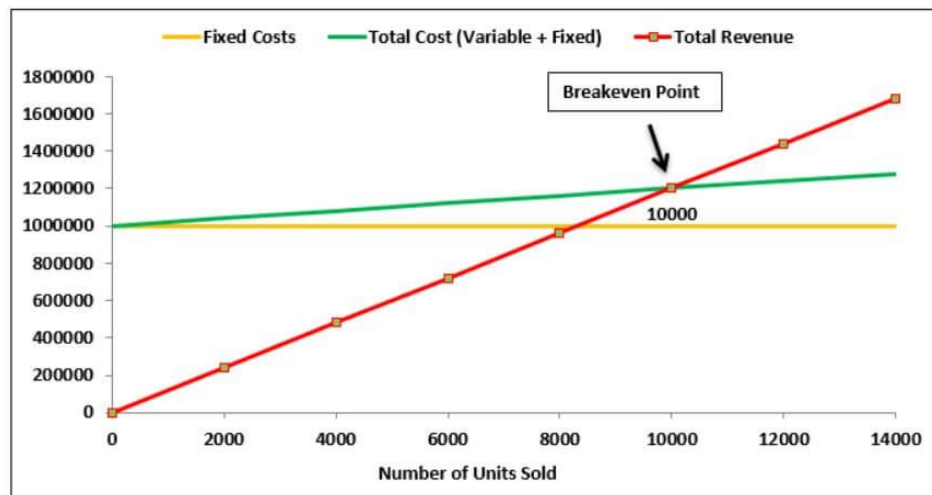


Image by wallstreetmojo.com

For my website I will be utilizing the Django Framework. Django is a python-based web framework. I am using Django because Python is the coding language which I am the most comfortable with and Django is one of the most efficient and up-to-date web development frameworks in Python.

## **Criterion for Success**

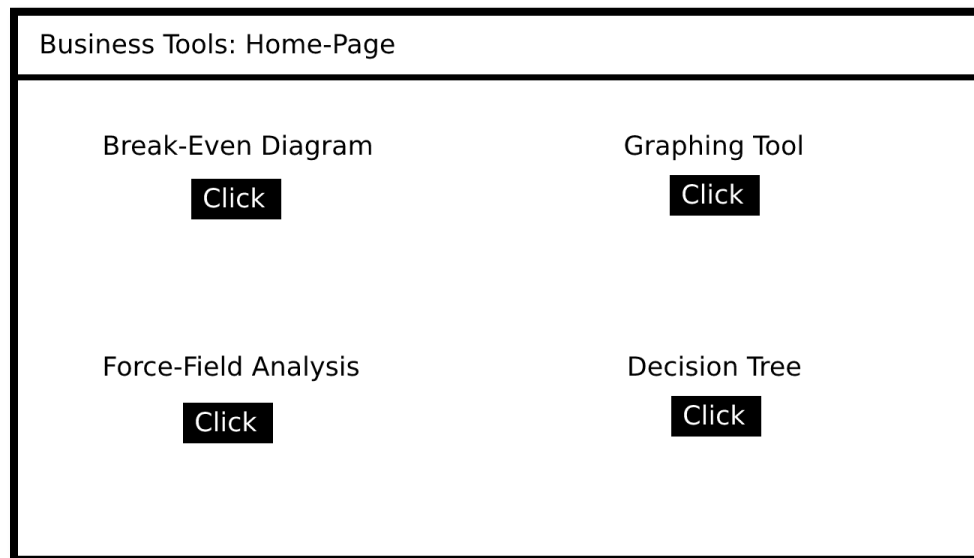
1. Create a working homepage for my website
2. Homepage will give access to all business tools
3. Entering a tool will give the user input boxes which will be added to the database when submitted.
4. Submitted data will be used to create business tools.
5. The following tools should function: Decision Tree, Graphing Tool, Force-Field Diagram, and Break-even Analysis.
6. Tools should be comprehensive and somewhat guided. (Labels, Comments, etc...)
7. After utilizing the tool the data should be removed from the database.

## **Criterion B**

### **Diagram Examples – Proposed Design**

Main Page:

*Figure 1: Main Page Diagram*



Input Pages:

*Figure 2: Input Pages Diagram*

Tool XXXXX

Submit

Input Box 1:

Integer Input 1:

▼

Input Box 2:

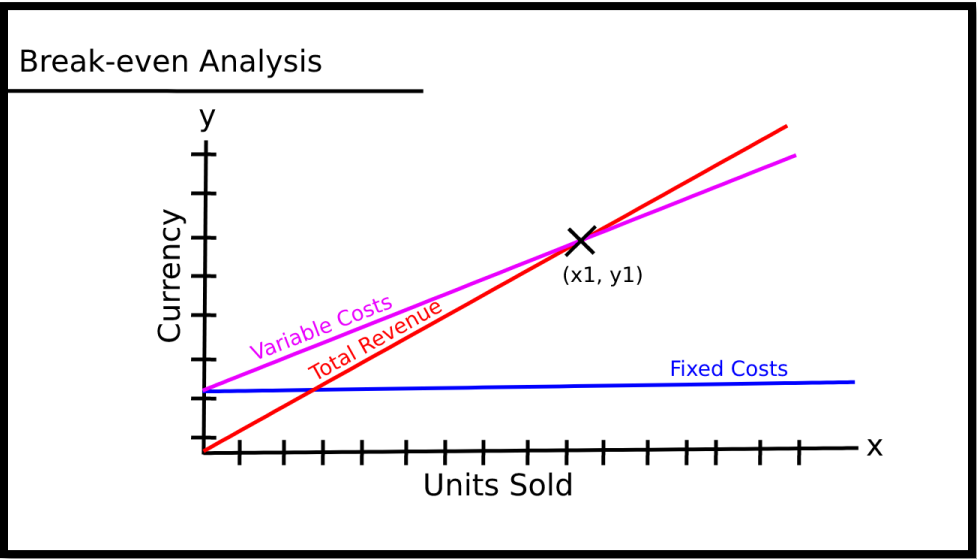
Integer Input 2:

▼

Input Box 3:

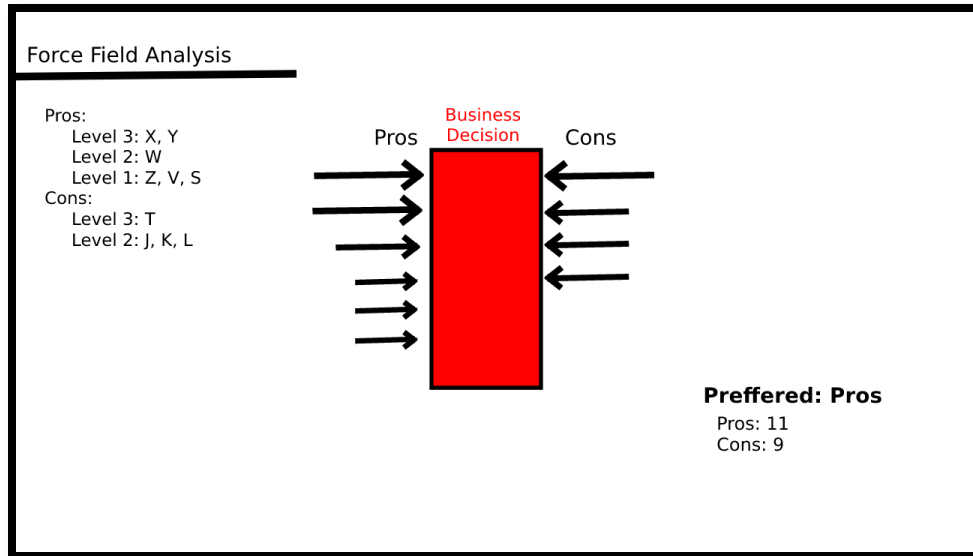
Break-even Analysis:

Figure 3: Break-even Diagram



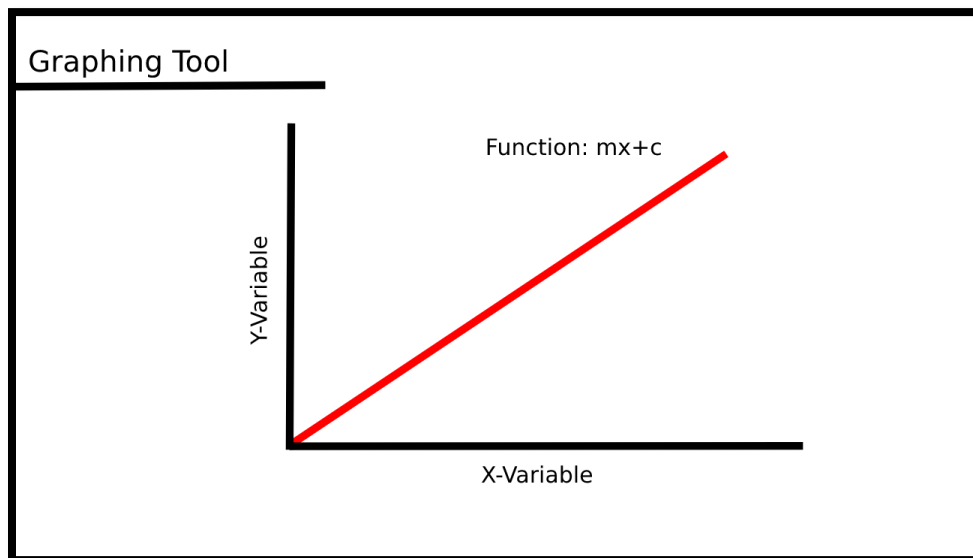
Force-Field Analysis:

Figure 4: Force-Field Diagram



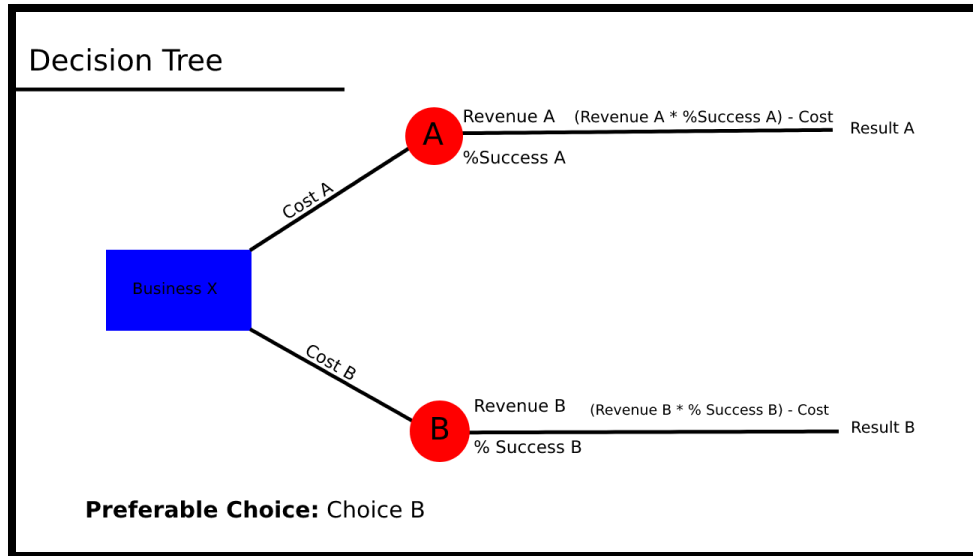
Graphing Tool:

*Figure 5: Graphing Diagram*



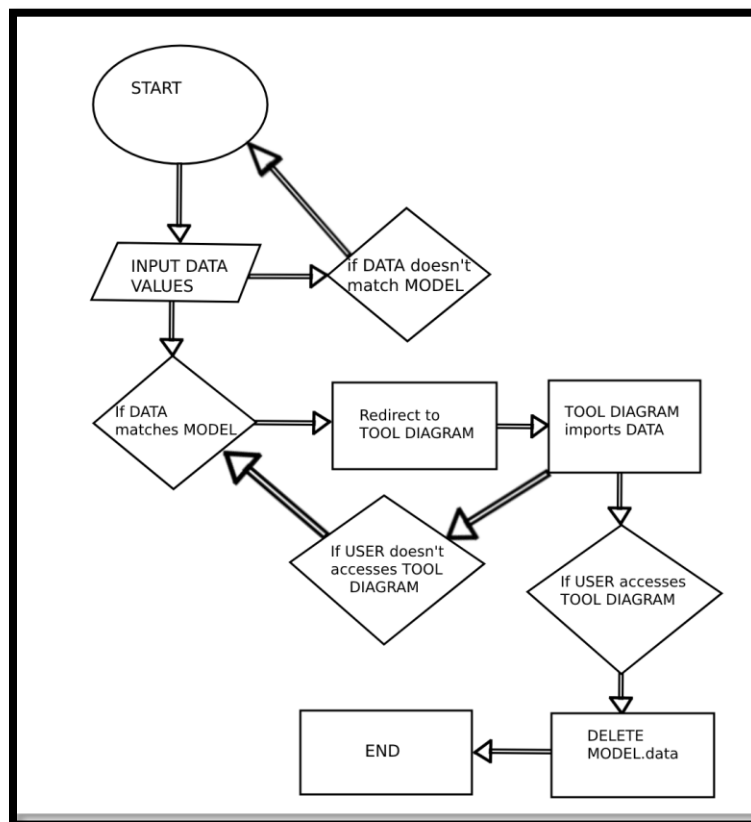
Decision Tree:

*Figure 6: Decision Tree Diagram*



## Flowchart – Data management

Figure 7: Flowchart Data Management



Explanation of flow chart:

The process starts by requesting the user to input the data values for the business tool. My program then checks if the input data matches the MODEL (To check if it has correct characters, or any other extras). If no, then the process repeats, if yes, then it moves on. It will then redirect the user to TOOL DIAGRAM, and simultaneously will import the DATA into the TOOL DIAGRAM page. If the user was not able to access correctly the TOOL DIAGRAM page, then the program will again match the DATA to the model and re-try. If the USER accesses the TOOL DIAGRAM page, then the DATA can be automatically erased from the model since it isn't required anymore. This will clear up more space for future DATA. Finally, the process ends.

## **Testing Plan**

<b><u>Action needing testing</u></b>	<b><u>Test Method</u></b>	<b><u>Expected Result</u></b>
If the website can run properly	Attempt to execute website on a server.	For the website to run with no error.
Admin login to database	Attempt to create an admin login	Be able to log-in as an admin into the database
Main page buttons	Get 3 users to attempt to use the buttons.	Redirect to correct website.
Force-Field Diagram Tool	Launch tool on another computer to make sure it functions everywhere.	Force-Field Diagram with correct values.
Break-even Analysis Tool	Launch tool on another computer to make sure it functions everywhere.	Break-even Analysis with correct values.
Graphing Tool	Launch tool on another computer to make sure it functions everywhere.	Graph with correct values.
Decision Tree Tool	Launch tool on another computer to make sure it functions everywhere.	Decision Tree with correct values.

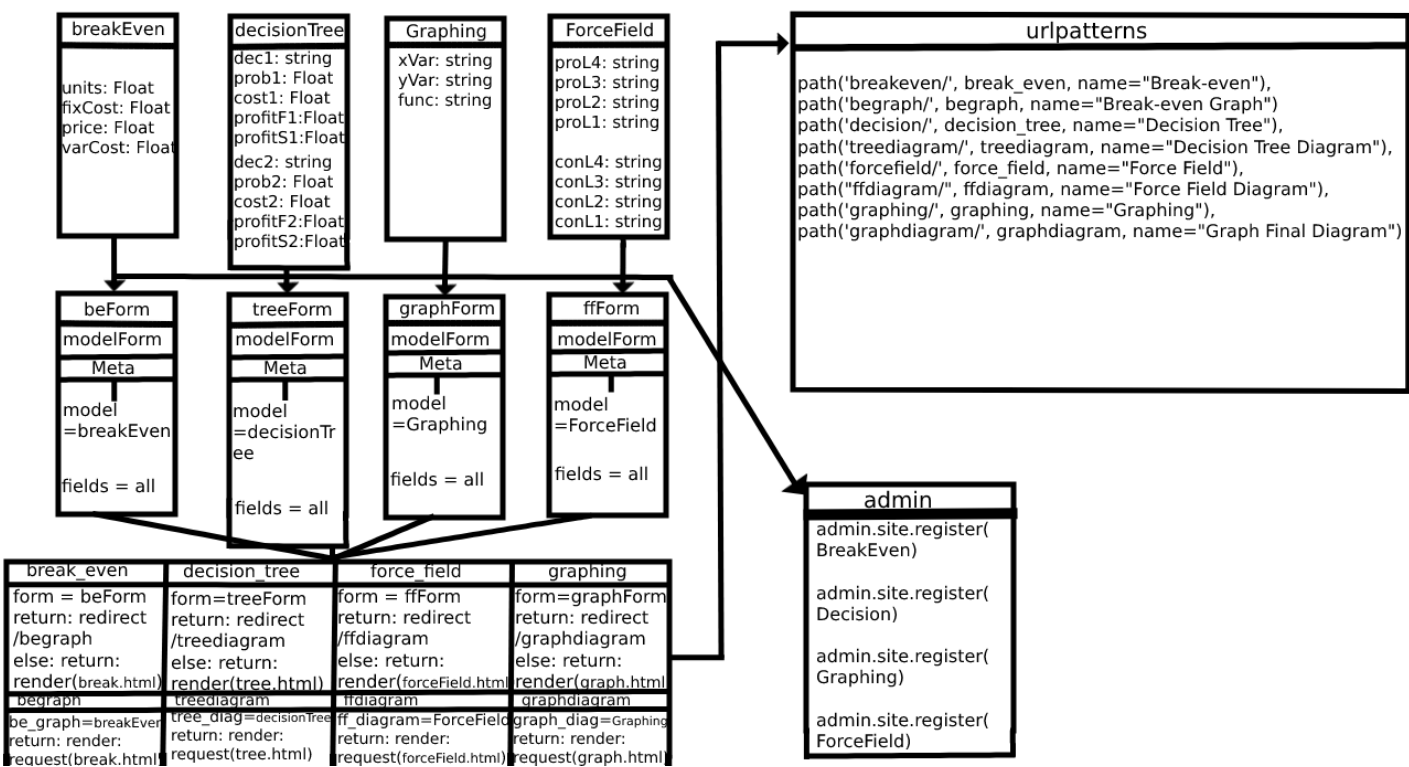
## **Record of Tasks**

<b>Order</b>	<b>Task Action</b>	<b>Estimated Time</b>	<b>Target Date</b>
1	Consult Client	1 Hour	17/08/2022
2	Consult Advisor	30 Minutes	19/08/2022
3	Create Plan	1 Hour	19/08/2022
4	Create main page	2 Hours	10/09/2022
5	Create models & database	1 Hour	16/09/2022
6	Create first tool	2 Hours	17/09/2022
7	Create remaining tools	4 Hours	20/11/2022
8	Product Testing	2 Hours	01/12/2022
9	Final evaluation	1 Hour	05/12/2022

# Criterion C

## UML Diagram

Figure 8: UML Diagram



The UML Diagram above represents and shows the process that the Models of the data go through from server-side to client side. It contains functions, variables, fields, and classes.