**Engineering Method**

Algorithms and Data Structures

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# Identifying the problem

## Context

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## Problem

It is required to identify the relationship of trust within the company. See where it is failing, how this is affecting communication and people who feel more distrust in the company.

## Requirements

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Requirements | | | | |
| Requirement | Name | Description | Entries | Result |
| R1 | Load employees | It allows the user to load the employee’s information through a text file provided. | File path | The file is read correctly, and the information is loaded. |
| R2 | Employees diagram | It allows the user to see the diagram of the employees who answered the surveys. | - | The employees are shown respectively. |
| R3 | Show trust levels | It allows the user to see the trust levels between each employee in the company accordingly. | - | The trust among the employees is shown. |
| R4 | Best path company | It allows the user to see the best path that a message could follow throughout the whole company (minimum spanning tree). | Graph G | The best path is shown on the screen. |
| R5 | Best path employees | It allows the user to choose 2 employees and see the best path for them to communicate avoiding conflict or misinterpretation. | Employee e1 and Employee e2 | The best path is shown on the screen and a list of employees representing the path too. |

# Research

In order to address the problem correctly, we might need some concepts.

* Trust: In order to define “trust” we had to do some proper research. Taking in consideration different sources. First, according to (Changing Minds, n.d.) trust is

“… both and emotional and logical act. Emotionally, it is where you expose your vulnerabilities to people, but believing they will not take advantage of your openness. Logically, it is where you have assessed the probabilities of gain and loss, calculating expected utility based on hard performance data, and concluded that the person in question will behave in a predictable manner.”.

Secondly, another source says that “Trust refers to a person’s confident belief that another’s motivations are benevolent toward him or her and that the other person will therefore be responsive to his or her needs.” (Psyhology, n.d.).

Since we found some relationships between other sources, we decided to leave just the two definitions from above.

Furthermore, we shall understand why is trust important for communication. We found that “When there is no trust, naturally, no one will voice out their opinions or ideas and there will be little or no team cohesion. Often, the outcome is that the organization will not grow as a team. Thus, we will never get to a level of a high performing team nor result in growing a successful business.” (Quek, n.d.). Indeed, we found that trust is not only crucial in communication, but in team and business performance as well.

On the other hand, we needed to look for some already existing programs which could help with the problem. We found the following:

* **IBM SPSS:** “IBM® SPSS® Statistics is the world’s leading statistical software used to solve business and research problems by means of ad-hoc analysis, hypothesis testing, and predictive analytics. Organizations use IBM SPSS Statistics to understand data, analyze trends, forecast and plan to validate assumptions and drive accurate conclusions.” (IBM, n.d.)
* **Microsoft Excel:** “Microsoft Excel is a spreadsheet developed by Microsoft for Windows, macOS, Android and iOS. It features calculation, graphing tools, pivot tables, and a macro programming language called Visual Basic for Applications.” (Wikipedia, 2019)

In addition, we thought about creating a computer program using some data structures. In order to do so, we needed to find different existing structures.

* (AQUI PONER LAS ESTRUCTURAS COMO GRAFOS Y DEMAS)

# Creative Solutions

## Brainstorm

1. Since we are asked to show how the trust is working within the company, we thought about creating a conference program. Which means, having one conference weakly to have a constant record of how the trust is improving or deteriorating. This would take about a month.
2. We also thought about creating some statistics with the information given by the surveys and generating some graphics with the program called “IBM SPSS statistics 26”. Finally, creating a file with all the information to hand it to the manager.

# Preliminary Design

## Rejected alternatives

## Accepted alternatives

# Evaluation and Selection of the best solution

## Criteria

## Evaluation

## Selection

# Reports

# Bibliography

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