**Assignment 1 - Introduction To Data Analytics (1200)**

**CRISP-DM**

The **C**ross **I**ndustry **S**tandard **P**rocess for **D**ata **M**ining (CRISP-DM) is an [open standard](https://en.wikipedia.org/wiki/Open_standard) process model with six phases that naturally describes the [data science life cycle](https://www.datascience-pm.com/domino-data-science-lifecycle/).

The CRISP-DM process consists of several steps which are summarized in the picture below:

**Data Understanding**

* Data Collection
* Data Description
* Data Exploration
* Data Quality Verification

**Business Understanding**

* Business Objectives
* Assess Situation
* Determine DM Goals
* Produce Project Plan

**Evaluation**

* Results Evaluation
* Process Review
* Next Step Determination

**Data Preparation**

* Data Selection
* Data Cleaning
* Data Construction
* Data Integration
* Data Formatting

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**Development**

* Development Planning
* Monitoring And Maintenance Planning
* Final Report Production
* Project Final Review

**Modeling**

* Modeling Technique Selection
* Test Design Generation
* Building The Model
* Model Assessment

*Dia.- Cross Industry Standard Process for Data Mining (CRISP-DM)*

**Step 1 - Business Understanding**

A mobile phone is commonly used gadget in our day-to-day life. It can not be avoided as it has become a necessity for human beings. The popularity and features of mobile phones have caused a great impact on the market share for the company.

**a. Identify the goal and frame the business problem.**

The goal is to identify the customer needs and understand what type of mobile device is used by them. Also need to know if they would prefer to upgrade their existing device. If they are buying for the first time, what type of mobile phone they would like to buy.

Business Problem: To discover different kind of consumers and their preferences for purchasing mobile phone.

**b. Gather information on resource, constraints, assumptions, risks etc.**

The information can be gathered on various factors. Some of the valuable aspects that should be considered are - budget, technical specifications, geographic location, mobile preferences, availability of the mobile and its service center in their region etc.

**c. Prepare Analytical Goal**

The analysis is done on the basis of mobile phone sales and services. The data captured by the analysis helps mobile phone manufacturers to take smarter and better decisions for their new products.

**d. Flow Chart**

By discovering the consumer's requirements and performing analysis on the data gathered will help them to make better decisions in future.

**Step 2. Data Understanding**

As an extensive amount of information can be achieved from cell phone industry, the manufacturers can give out smarter decisions by having good and sufficient knowledge on the same.

Following are the variables that can be taken into consideration:

Age of consumer

Budget

Type of mobile phone (touchscreen, non-touchscreen, qwerty keypad)

Make (Samsung, Apple, OnePlus etc.)

Geographic location

Specification sheet of the desired mobile phone (RAM, memory, processor, etc)

**Steps 3 - Data Preparation**

Once the captured data is available and seem to be satisfied for business goals and perspectives, the cleaned data can be used for data preparation.

In this stage the data is trained, validated and tested in loops to get enhanced results.

Let us take a part of the whole process of cell phone industry i.e mobile phone design and technical specifications. The performance testing is mainly based on the processor, RAM, internal memory, software etc.

The dataset collected can be cleaned. The null or duplicate row values and column values can be filled with the related mean values or particular data row(s) can be dropped. The final dataset can be utilized for modeling.

**Step 4 - Modeling**

The prepared data can be used for sharing the optimized technical specifications of the mobile phone by using right data modelling. Different modelling techniques can be used to interpret how right data model can provide optimum performance and an appropriate price that can boost sales.

**Step 5 - Evaluation of the Model**

A prototype model of the mobile phone is created and demo model with specifications can be showcased to consumers to record their feedback. It is then reviewed and focused on the activities that are missed out. After that, an improved final expected model can be exhibited.

**Step 6 - Deployment**

The final model created is tested and evaluated by consumers. It is later presented to the management of manufacturers which takes further decisions. Finally, when approved, the prototype will be sent for production and will be available to public. This will boost new customers and profits for the company.