

Palm cards for INFO1903, Project Stage 3

Information

- In the past 5 years, we have created more information combined, than in the past 50,000 years.
- Information is something which informs. It is a tool by which decisions are made.
- Without information, we would be not able to decide what is right and our decisions would become unreliable.
- In today's time, most of humanity's progress and innovation is built on information.
- However, information in its purest form as 'big data' is very hard to interpret.

Informatics

- Informatics is the collection, classification, storage, retrieval and analysis of recorded knowledge which includes big data.
- It is about being able to work with computers and programs to efficiently analyze the data.
- Informatics is a viable solution to many common fields in which there is a lot of data for example:
 1. Health
 2. Finance
 3. Economics
 4. Etc.

Some problems informatics can solve

- The consumer influence of AI products
- Edstem's estimated growth by the end of 2020.
- The impact of cryptocurrencies on the real world by 2020.
- How Damascus steel was crafted, and in which point in history the craft was lost.
- How an excess or deprivation of sleep can affect the human body.

Projects

- All of this shows us that informatics can solve a lot of problems in real world projects using data.
- Projects are occasionally undertaken in a partnership between companies.
- Zero robotics is an example of a collaboration effort between many universities and NASA to improve space coordination.

Allocated funds

- If the research for the chosen project is not present in, a new data gathering process will have to be conducted to retrieve and obtain the information necessary for the project.
- This data can be obtained by surveyors, researchers, survey bots, Facebook campaigns, and many other ways in which the customer is incentivized for their provided information.

Pause

- These are just some of the data mining methods available
- The method of classification is dependent on an expert's view on what some pieces of information together result in. These views are fed through a machine learning algorithm called a classifier countless times, till the classifier is fully developed and able to detect the patterns in any given dataset and extrapolate the conclusion.

Pause

- Here is an example of a clustering.

Allocated funds (2)

- Funds are not just used for gathering research, some budget constraints are created so that the funds can be spread out between research, equipment, data scientists and programmers.
- After the research is conducted, the intuition of the analysts and programmers is used to determine what data is useful, and what the head of research wishes to obtain in terms of results.
- The programmers will create machine learning algorithms, use analytical tools such as R studio, Jupyter Notebook, Excel, Unix, and other tools and the computers will do the heavy lifting in calculating the results.

Advantages

- Large chunks of unorganized data are used to give meaningful information that can benefit tens of thousands of lives.
- An organization can create a plan using information that the data provides. This helps them in making informed decisions.
- Informatics can be applied to almost any field which makes it a very useful tool for organizations of any scale.
- The benefit outweighs the cost as establishing an objective without a goal or research can be very deadly.
- This information can be used elsewhere in the future, hence long term value is created in the society.

Disadvantages

- Gathering data can become a tedious and an expensive process not to mention distilling the information.
- Applying informatics in an organization or team with very small allocated funds can be very costly.
- Data gathering is not an autonomous process because it requires the intuition of the programmer as well as the analyzer's.