Connected System Design Project (EGE205)

Data Management, Analysis and Interpretation

Data Management

Data management is the practice of **organizing data** to unlock its potential for data analytics.

Managing data effectively requires having a data strategy and reliable methods to **INTEGRATE**, **CLEANSE** and **TRANSFORM** data.

Data Management

Data Integration

Data integration is the process of **combining** data from **different** sources into a **single**, unified view that provides a more comprehensive view of the world.

Data Management

Data Cleansing

- Data cleaning is the process of **fixing or removing incorrect**, **corrupted**, **incorrectly formatted**, **duplicate**, or **incomplete** data.

- Here are the **7 criteria** that can be considered as part of the process of cleansing data.
  - Respondents who only answer a portion of your questions
  - Respondents who don't meet your target criteria
  - Respondents who speed through your survey
  - Respondents who chooses the same answer choice over and over again
  - Respondents who provide unrealistic answers
  - Respondents who give inconsistent responses
  - Respondents who offer nonsensical feedback in your open-ended questions

Data Management

Data Transformation

Data transformation is the process of **applying a function** to the raw data source so that it can be changed to a form that is ready-for-use by data analytics.

Data transformation is part of the commonly-known **ETL (Extract/Transform/Load)** process. The name suggests a 3-stage workflow where the raw data source is first read in, transformed, and then passed on further for data analytics.

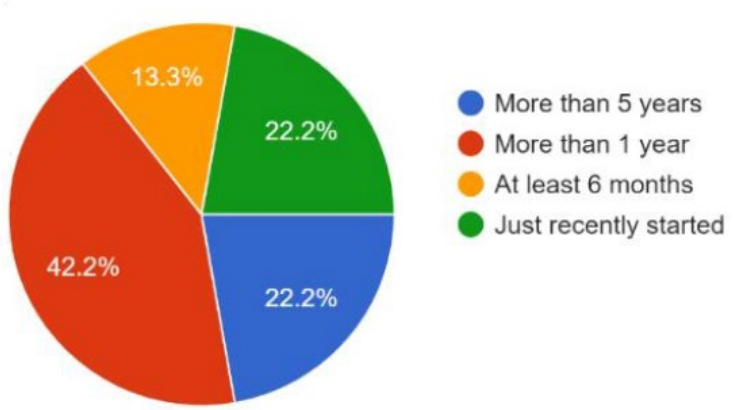
Data Analysis and Interpretation

- **Data analysis** is the process of **ordering**, **filtering**, **grouping** and **aggregation** of data to obtain the answers to the questions asked. It is usually the first step taken towards data interpretation.

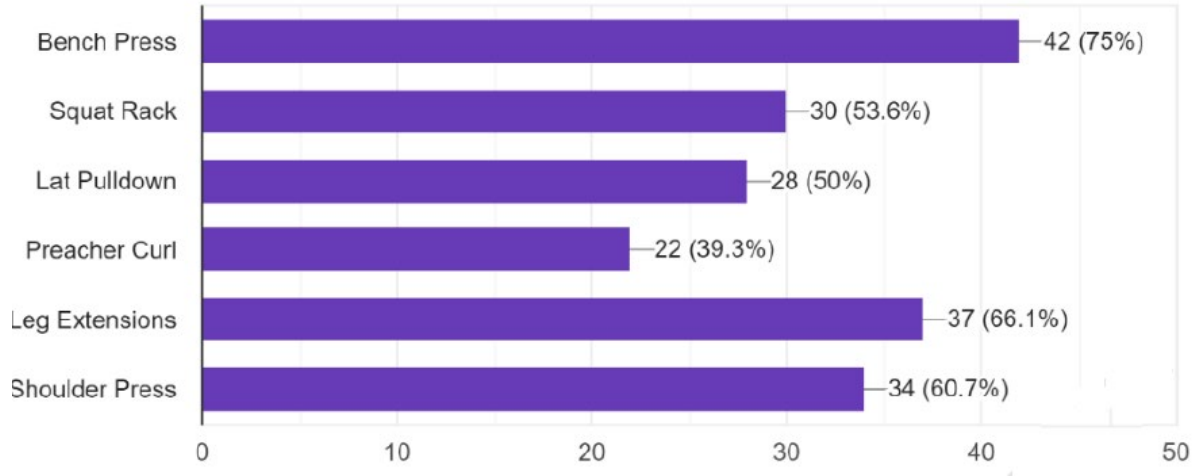
- **Data interpretation** is the process of **reviewing data** by qualitative method (**visualization** on charts) or quantitative method (statistics). It helps to **assign some meaning to the data** and arrive at a relevant conclusion.

Data Analysis and Interpretation

- Data analysis and interpretation has the following characteristics:
  - Data **identification** and **explanation**
  - **Comparing** and **contrasting** of data
  - **Identification** of **data outliers**
  - Future **predictions** of trends



- By conducting a proper data analysis and interpretation, one could gain the following benefits:
  - Make **informed decision**
  - Anticipate **needs** with trends identification
  - Reduce **cost**
  - Gain **clear foresight**



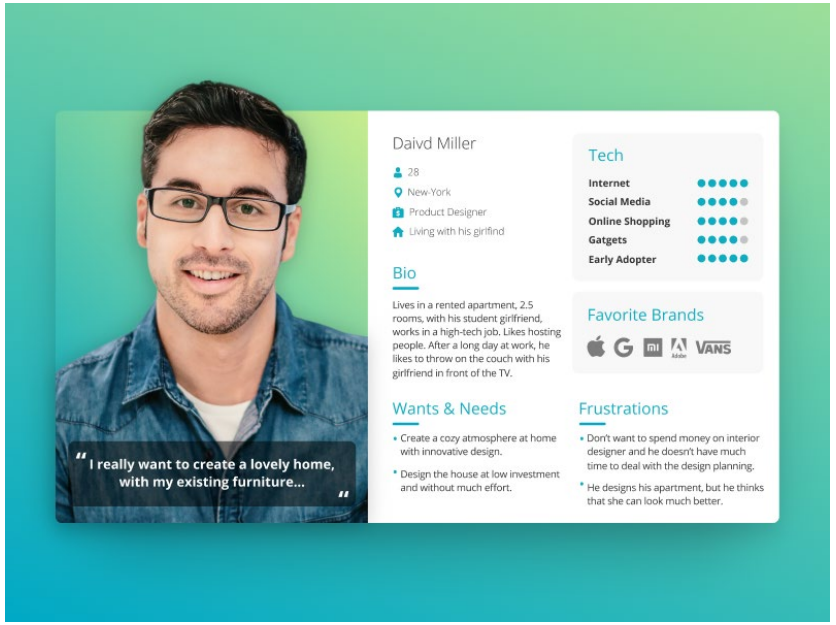
User Persona

- A **user persona** is a **semi-fictional character** created **based on research** and **real data collected** in order **to represent a particular user type.**

- User persona is useful to **grow and improve** a business as it helps to **uncover the way people search for, buy, and use a product**, so the business can focus the efforts on improving the experience for real people and use cases.

User Persona

- Persona can be described in such a way as to **express enough understanding** and **empathy** to understand the user.
- Some of the details that can be included in the description are **persona's education, lifestyle, interests, values, goals, needs, limitations, desires, attitudes, and patterns of behavior**.
- Give the persona a name and add a few fictional personal details to make the persona a realistic character.



Project Report
(Part 1 & Part 2)

Aim to complete before week 6's zoom lesson

Project Report (Part 2)

Task 1 – Data Management

1. Work as a team to **integrate** data collected from various source.
2. Work as a team to **cleanse** the collected data.
3. Work as a team to **transform** the data using graphical representation.

Task 2 – Data Analysis and Interpretation

1. Work as a team to **analyze** and **interpret** data by using either qualitative or quantitative methods or both.
2. Each team member to **think** about your data from **various perspectives**, and **write down** your thoughts.
3. Each team member to **reflect on your own thinking** and reasoning by **avoiding subjective bias**, **false information** and **inaccurate data**.
4. Work as a team to **create a persona** (https://app.xtensio.com/templates -> user persona) of your targeted user by using the conclusion made from data analysis and interpretation.

Project Report (Part 2)

Reading References:

- https://www.nichq.org/insight/3-tips-transforming-data-visuals-tell-clear-story
- https://www.formpl.us/blog/quantitative-data
- https://www.formpl.us/blog/qualitative-data

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End of Data Management, Analysis and Interpretation