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JMP/Excel Workshop

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Background

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Excel for Data Analysis

- Can be used to examine data and perform simple and basic data analysis
- Convenient for data entry
- Here are some useful methods for data analysis:
    - Charts
    - Ranges
    - Conditional formatting
    - Sorting and filtering
    - Data validation
    - Formula auditing
    - Pivot tables

Source:
https://www.analyticsvidhya.com/blog/2021/11/a-comprehensive-guide-on-microsoft-excel-for-data

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What is JMP?

- A statistical software that can perform data preparation, analysis, and graphing
- Simple to use because there is no code required
- What can you do with JMP?
    - Data cleaning, data summary, data visualization, Statistical analysis, machine learning…
- Link to the tutorial videos provided on the JMP website: https://www.jmp.com/en_dk/academic/course-materials/analytics.html#m-stepbystep

Source:

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[02]
Applications / Workflow

JMP Analytic Workflow

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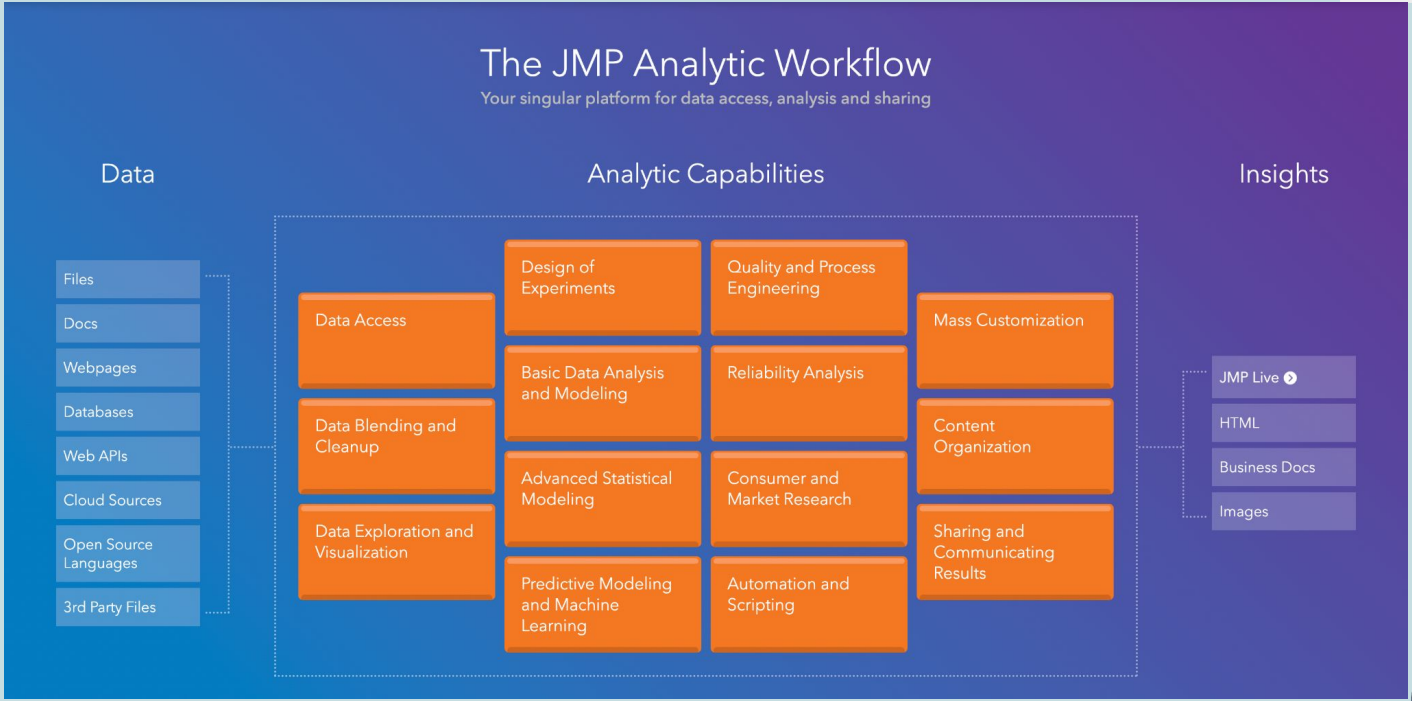

Source:
https://www.jmp.com/en_us/software/analytic-workflow

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Data Access

- Easy to access data from a variety of sources
    - i.e. Excel, files, databases, APIs, R, python, etc.
- When data is imported into JMP, they are already formatted and ready to visualize and analyze

Source:
https://www.jmp.com/en_us/software/capabilities/data-a

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Data Cleanup

- We can perform various data cleaning tasks using JMP, such as:
  - Shaping tables
  - Merging data
  - Anomaly detection
  - Dealing with missing data

Source:
https://www.jmp.com/en_us/software/capabilities/data-b

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Data Exploration & Visualization

- Graphing
  - Histograms, box plot, tree map, and many more
- Data Summary
  - Finding mean, median, frequency, variance, etc.
- Filtering (subgrouping)
- Dashboards
- Explore texts
  - Word cloud, etc.

Source:
https://www.jmp.com/en_us/software/capabilities/data-e

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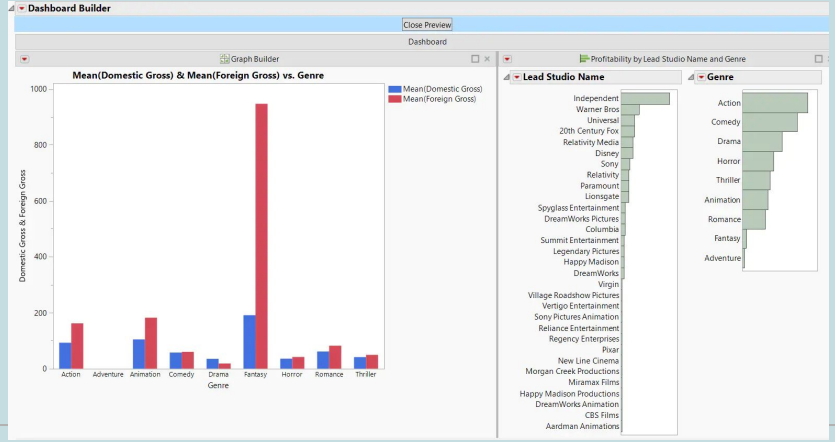
Analysis

- What can we do with JMP?
  - One way & two-way ANOVA (analysis of variance)
  - Correlation
  - simple/multiple linear/logistic regression
  - Bootstrapping
  - Clustering
  - classification trees
  - regression trees
  - k nearest neighbors
  - …and many more

Source:
https://www.jmp.com/en_us/software/capabilities/data-e

Sharing and Communicating pt.1

- JMP Live
  - A cloud location to store and share your reports and data with other JMP users
- Interactive HTML
  - Sharing reports and data with non-JMP users
- Dashboard



Source:
https://www.jmp.com/en_us/software/capabilities/sharin

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Sharing and Communicating pt.2

- JMP Journals
  - 1. Static presentation
    - Embeds the output of one or more JMP reports
    - Looks similar to when we save output to a PDF
    - No data table; points cannot be selected or changed
  - 2. Dynamic presentation
    - Looks like an outline with texts and buttons that reveal / hide certain reports and data tables of your choice
    - “Dynamic”: those reports and tables can be changed or updated
- Workflow builder
  - Documents actions throughout the preparation and analysis workflows

Source:
https://www.jmp.com/en_us/software/capabilities/sharin

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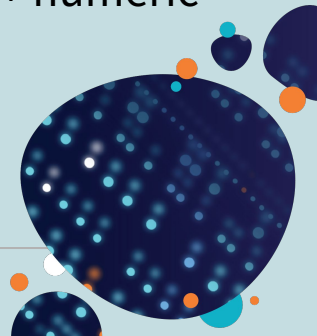
Summary

- Similarities
  - Both are powerful tools in performing basic data analysis
  - Both are useful data visualization tools (can be used to plot graphs and charts)
- Differences
  - Structure
    - JMP - data tables
      - A cell is defined based on its column (one specific variable)
    - Excel - spreadsheet
      - You can enter any type of data (mixed character + numeric data) into a cell



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[03]
Engagement Activity

UCSD Enterprise Software Licensing

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[04]
Q&A

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