7a.002.SBU - The Intelligent Dashboard

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Project Start: 3/1/2017	**End Date:** ???	**Project Budget:** $49.5k	**Spent:** $20k

Project Summary:

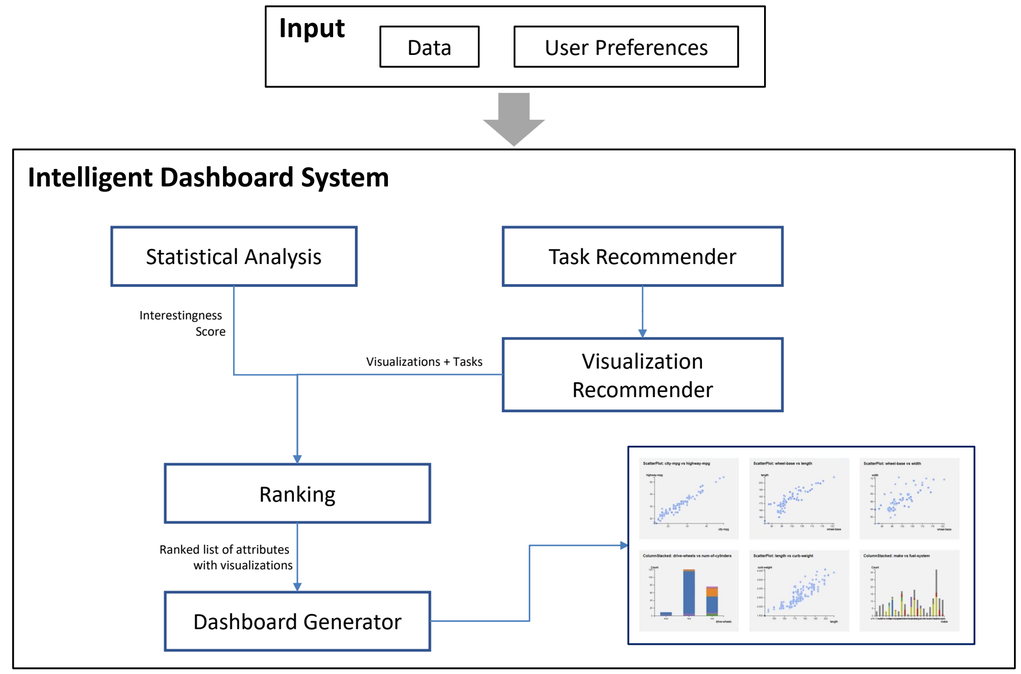
Creating an effective dashboard is a challenge for both analysts and designers. It is difficult to pick the best set of base visualizations for the task and data. This can lead to unsatisfactory analytics results and insights especially when creating a dashboard for a large user base with different preferences. The proposed **Intelligent Dashboard** addresses this issue.

- It's an automated dashboard building system
- Integrates data visualization knowledge with AI and ML
- Finds interesting statistical patterns between attributes in the multivariate data and assigns a score to them
- Uses an ML model to associate attributes with 10 well-studied data analysis tasks (e.g. find correlations or anomalies)
- Generates visualizations based on tasks and ranks them based on interestingness score
- Enforces consistency among the base visualization for good storytelling

Details of Progress/Achievements:

- Developed the overall approach and game plan
- Implemented the statistical analysis module
- Collected data analysis questions associated with different datasets (cars, insurance, countries) and categorized them into one of 10 tasks. This question dataset is used to build a model to determine which tasks can be performed on new datasets

Dashboard recommender system



PROJECT DELIVERABLES

Deliverable	Achievements	Remaining To Do
1. System architecture schematic	100% complete.	Accomplished
2. Implementation of statistical analysis module	80% complete. Implemented algorithms to determine presence of outliers, mutual information, entropy etc.	Add algorithms cluster detection
3. Implementation of task and visualization recommender module	50% complete. Created a new dataset containing questions about existing data and their categorization into one of ten tasks. Using existing work we are able to suggest a visualization based on task + attribute type.	Use our dataset to find which tasks are preferred for attributes based on statistical analysis results. Additionally, learn how to automatically categorize new questions.
4. Dashboard composer with implementation	30% complete. UI created with a naïve method of selecting a subset of curating charts from a ranked list.	Develop a method for intelligently selecting a subset of charts from a ranked list.