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DATA VISUALIZATION AND VISUAL ANALYTICS



Project Assignment

VAST Challenge

- Visual Analytics Science and Technology (VAST) Challenge is an annual contest with the goal of advancing the field of visual analytics through competition
- Propose a novel analytical task and evaluate effectiveness of data transformation, visualization and interactions
- After the challenge, the datasets are often used as benchmark for new software and systems

VAST Challenge 2015 – Chaos at DinoFun World



This scenario and all the people, places, groups, technologies, contained therein are fictitious. Any resemblance to real people, places, groups, or technologies is purely coincidental.

Background

- **DinoFun World** is a typical modest-sized amusement park, sitting on about 215 hectares and hosting thousands of visitors each day. It has a small town feel, but it is well known for its exciting rides and events.
- One event last year was a weekend tribute to **Scott Jones**, internationally renowned football (“soccer,” in US terminology) star. Scott Jones is from a town nearby DinoFun World. He was a classic hometown hero, with thousands of fans who cheered his success as if he were a beloved family member. To celebrate his years of stardom in international play, DinoFun World declared “**Scott Jones Weekend**”, where Scott was scheduled to appear in two stage shows each on **Friday**, **Saturday**, and **Sunday** to talk about his life and career. In addition, a show of memorabilia related to his illustrious career would be displayed in the park’s Pavilion.
- However, the event did not go as planned. Scott’s weekend was marred by crime and mayhem perpetrated by a poor, misguided and disgruntled figure from Scott’s past.
- While the crimes were rapidly solved, park officials and law enforcement figures are interested in understanding just what happened during that weekend to better prepare themselves for future events. **They are interested in understanding how people move and communicate in the park, as well as how patterns changes and evolve over time, and what can be understood about motivations for changing patterns.**

Challenge

- Mini Challenge 1
 - Focuses on **movement of people** around the park
 - Objective: characterize the movement of groups and individuals, with a special emphasis on what might be relevant to better understanding the incident that occurred in June 2014.
- Mini Challenge 2
 - Focuses on the communications over time that took place among the park visitors using the park app.
 - Objective: explore linkages between visitors and among park patrons and park staff that could reveal behaviors of interest.
- Grand Challenge
 - Combines the information found in the previous two MCs
 - Objective: How was the crime executed and who was responsible?

Mini Challenge 1

- Characterize the attendance at the park on this weekend. Describe up to twelve different types of groups at the park on this weekend.
 - How big is the group type?
 - Where does this type of group like to go in the park?
 - How common is this type of group?
 - What are your other observations about this type of group?
 - What can you infer about the group?
 - If you were to make one improvement to the park to better meet this group's needs, what would it be?
- Are there notable differences in the patterns of activity on in the park across the three days? Please describe the notable difference you see.
- What anomalies or unusual patterns do you see? Describe no more than 10 anomalies, and prioritize those unusual patterns that you think are most likely to be relevant to the crime.

Mini Challenge 2

- Identify those IDs that stand out for their large volumes of communication. For each of these IDs
 - Characterize the communication patterns you see.
 - Based on these patterns, what do you hypothesize about these IDs?
- Describe up to 10 communications patterns in the data. Characterize who is communicating, with whom, when and where. If you have more than 10 patterns to report, please prioritize those patterns that are most likely to relate to the crime.
- From this data, can you hypothesize when the vandalism was discovered? Describe your rationale.

Grand Challenge

- Scott is not a paying customer and does not have an ID. Describe Scott Jones' activities in the park during the three-day weekend. Who does he spend most of his time with? When does he arrive? When does he leave? What route does he follow?
- Identify up to 8 issues with park operations during the three-day weekend. Provide a rationale for your answers.
- For the crime, describe the following, and provide a rationale for your answer.
 - When did the crime occur?
 - Where did the crime take place?
 - Who are the most likely suspects in the crime?

References

- Visit the webpage of the Challenge:
 - <http://vacommunity.org/VAST+Challenge+2015>
- Download the dataset from the website

Exam and Project

- Each student may choose one of the two Mini Challenges (or both)
- Group project
 - At most two person per group
 - Mandatory both MCs to be addressed
 - Mandatory Grand Challenge
 - Preferably one person per MC (however, it is possible to work in parallel on both)
- Project submission
 - Report describing the overall project, highlighting the design choices, the answer to the challenges and the rationale through visualization
 - The code base of the project should be submitted through a remote GIT repository
 - Discussion of the project during the oral presentation