Data Visualization using Tableau: An Experiential Learning Competition

Abstract

Data visualization has emerged as a powerful tool to quickly turn vast amount of data into useful insights with the help of advanced graphing techniques. Using a leading data visualization software – Tableau – we present a novel case that was conducted at a big public university in Florida USA. As a part of the case, four student teams comprised of undergraduate students were formed, trained in using Tableau for two weeks, and then made to compete at a conference. Students not only learn how to use data visualization software (Tableau) on real world data to create useful insights, but also how to communicate their knowledge to the professions attending the conference in an effective manner.

Keywords: tableau, data visualization, teamwork

Method: What you did in developing this case study

About sixteen students were selected based on their skill level and interest in data visualization. These students were given a two-day workshop on using Tableau to visualize vast amount of data by a professional firm. Students were basically trained on getting started with data visualization using tableau and creating some simple charts. Then students were divided into four groups. A brief description of the case was provided to each group. As a part of the case, teams were to select a real-world dataset from public portal such as Kaggle.com. Teams were told that the chosen dataset should be big enough to create effective data visualization project with enough measures and dimensions. Then two faculty members worked continuously with these teams for two weeks helping them develop a sound visualization project by honing their technical skills and creative thinking ability. Students were provided with a detailed rubric on how their team will be evaluated at the competition. Students were told that it's not just their technical ability that will be

judged, but also how professional they look and confidently present their case including maintaining proper eye contact with the audience. As a part of the competition, students were to present their projects at the university conference. Three independent judges were appointed to judge teams' performances. Finally, top two winning teams were awarded with trophy and certificate of achievement. The whole process presented a valuable learning experience for students. They not only learned technical ability, but also how to work in a team and how to formulate a sound business strategy to choose their topic wisely and present their case in the most effective manner possible.

Findings: What you learned in developing this case study

Tableau has become one of the leading data visualization tools available in the market today that quickly turns vast amount of data into useful insights using advanced charting techniques. The purpose of the competition was to provide students with an opportunity to learn data visualization concepts using Tableau software on a large real-world dataset. There were many learning objectives that were achieved: 1) Students gained technical expertise on using Tableau software, 2) Students learned how to work in a team with people from diverse background, 3) Students learned how to formulate a sound business strategy to prepare and present their case, and last but not least 4) Students learned how to present their projects in front of professional audience.

Event Execution

Working in teams is an essential part of organizations. Professionals often need to work in team environment with people from diverse background (Hannah & Robertson, 2016; Halfhill & Nielsen, 2007). For our case study, we chose the data visualization project using Tableau

software that will extend opportunity to business students to learn technology skills as well as

skills to work in teams that would help them make effective business decisions. Below we

provide in brief out case execution summary.

Steps	Description	Time frame
Case preparation	Initially, teams were trained by a private firm in-person for two days on getting started with Tableau software. Then, students were given detailed guidelines on data visualization case competition requirements. Two faculty members mentored teams for two weeks prior to the competition helping them building a sound visualization case. Teams were mentored via Zoom. Students were given guidance on selecting a large size real-world dataset, building advanced charts, dashboards, and storypoints, working in teams, and on their presentation skills. As part of the competition, students were told to prepare 15-20 minutes presentation summarizing their findings.	Two weeks (Meetings lasted between 45-60 minutes)
Case presentations	There were four teams competing with each other. Dressed in professional attire, each teach presented their data visualization case highlighting importance of the selected topic, explaining each chart, dashboard, and storypoint.	15-20 minutes
Q&A session with judges	After each team presentation, three judges were given opportunity to ask questions on their presentations. Each judge critically evaluated every project presentation and provided detailed feedback to teams. Judges feedback included encouraging comments on improving technology usage, understanding business process well before delving into data visualization, and useful tips on enhancing public speaking.	5-10 minutes
Judges' evaluation and scoring of team project presentation	The three judges then gave their score to each team using a detailed rubric. After tallying teams scores, top two teams were declared winners since they earned equal scores. Teams were awardee with certificate of achievement.	20 minutes

After completing the required case exercise, students were able to:

1. Effectively use data visualization software such as Tableau to create sound and actionable

   insights

2. Gain technical and critical thinking ability

3. Learn to work in teams with people from diverse background

4. Lean to take leadership role

5. Sharpen their public speaking skills

6. Enhance their communication and presentation skills

Session Discussion and Objectives

The objectives to present and discuss this case in an MOBTS session include:

1. Discussing a successful methodology used to prepare students on creating effective data visualization project using Tableau

In which learning environment do you utilize this study (physical and/or virtual)?

We conducted this event in-person with 18 students from the undergraduate business and business administration industry disciplines ranging from Sophomore, Junior, and Senior level. Virtual meetings were conducted two weeks prior to the event during which students were trained on various aspects of the competition including training on Tableau software, choosing a real-world large dataset, working in a team environment, formulating a sound business strategy, and communication and presentation skills.

Will you be conducting this case study with your attendees in this session?

We will not be conducting this case study with the conference session attendees. We will be discussing our experience in conducting this event and learning outcomes achieved for the students.

References

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