Data Science Practicum Questions

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1 Introduction

A student must submit a practicum proposal to support his or her application for a data science practicum course. As soon as the student completes his or her practicum/internship, he or she must submit a final report on the practicum project. The 3 credit hours are only awarded to students who appropriately addressed all components list in the proposal in his or her final practicum report.

2 Practicum Proposal

The components of practicum proposal are list as follows. All of the components must be clearly described.

1. **Project title**.
2. **Introduction and background of the project**.
   The idea of this component is to acquaint readers with the practicum project. The present status of the project should also be covered in this section. In addition, it is important to clearly answer three questions: why is the proposed practicum project necessary to complete your study in data science? What do you expect to learn from the project that you cannot learn from regular data science courses? Why do you think the practicum project deserves for 3 credit hours?
3. **Statement of the practicum problem**.
   Describe the question or issue to be studied in the practicum project. The proposed project should have a genuine need for investigation. If the major component of a project is simply collecting data, or cleaning the data, the project is not an appropriate one for the practicum course. A data science practicum project must include significant work that cover most of the phases of data life cycle such as data acquisition, exploratory data analysis, data modeling and management, data analysis, data visualization, reporting and interpretation of data analysis results.
4. **List two or three related work such as publications and systems**.

5. **Objectives of the study**.
   The objectives refers to the questions to be answered through the study. They indicate what we are trying to get from the study or the expected results/outcome of the study. Generally, they are written as statements, using the word "to". (For example, 'to discover ...', 'to determine ...', 'to establish ...', etc.)

6. **Research design and methodology**.
   Give a detailed blueprint specifying how the research will be carried out including data collection, data analytics algorithms and research methods.

7. **Conclusion**.
   Restate the project topic, briefly summarize your main points, and answer the "so what" question. It is expected to highlight possible research findings and their usefulness in the interest of the data science community.

8. **Select bibliography**.

3 Practicum Report

The final practicum report must cover the components list as follows:

1. **Project title**.
2. **Introduction and Background of the Project**.
3. **Statement and Objectives of the Project**.
4. **Literature Review**.
5. **Research Design and Methodology**.
6. **Data Acquisition and Preparation**.
7. **Exploratory Data Analysis and Hypotheses Development**.
8. **Data Analysis**.
9. **Data Visualisation and Reporting**.
10. **Evaluation of Hypotheses**.
11. **Others: such as ethics of the study, data security and privacy**.
12. **Conclusion**.
13. **Bibliography**.