Master of Science Business Analytics

Capstone Projects

Summary

All Master of Science Business Analytics students must take Capstone Project course in the last semester before they graduate. In this one full-semester supervised project, they will develop a tailored strategy for a real organization using data analytics and machine learning algorithms, designed to address a challenge or an opportunity specific to the organization needs. The course is offered in the fall, spring and summer sessions. Companies are encouraged to participate and gain the benefits through providing projects to the students and receiving the results. Non-Disclosure Agreement (NDA) maybe signed whenever is necessary.

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# Capstone Project Description

All Master of Science Business Analytics students must take the Capstone Project class in the last semester before they graduate. Projects are provided by real companies and organizations that see the benefits of this program. Students are grouped into teams and will spend time analyzing applicable data sets and come up with findings and recommendations which will help organizations gain insights into new opportunities, address a specific challenge, and make informed decisions.

Project duration is one full semester and is offered in the fall, spring, and summer sessions. All projects are supervised by Dr. Sidhar Nerur and will follow the project flow guideline described in this document.

**Examples of previous projects include the following:**

* **Sentiment analysis**of social media content (positive, negative or neutral)
* **Stock Market prediction** based on time-series modelling
* **Text analysis** of product/business reviews and how they impact performance
* **Predicting house prices** based on historical data
* Building a **recommender system** for movies
* **Predicting customer churn** and recommending solutions to avoid this
* **Text analysis** of blogs to identify common trends

Projects are not limited to the above areas. The students have experience studying datasets to deal with a variety of problems, such as image classification, predicting the quality of wine, detecting credit card fraud, etc.

# Students’ Skill Sets

The students are trained in a variety of technical and business skills, and have studied topics including market basket analysis, text analytics, machine learning, Spark Analytics, and recommender systems. Below are the students’ typical skill-sets obtained at this point of their academic career:

* Python
* Machine/Deep learning
* Big Data
* Hadoop
* Statistics
* Data Mining
* Data Warehousing
* Business Intelligence
* Forecasting
* Web & Social Analytics
* Business Case

# Project Deliverables

* Project Plan: In the beginning of a project, students will meet with organization representative(s) to devise the project scope and prepare detailed plan for completion of the project.
* Progress Reports: Students will work on deliverables outlined in the project plan. Teams will periodically communicate project progress with organization representative(s) and discuss matters necessary to complete project tasks.
* Final Report and Presentation: Students will submit detailed report on the outcomes of the project. Teams will also present their projects. Organization representative(s) are invited to attend these presentations. Report and presentation will include:
* Clear statement of objectives
* Alternatives considered to fulfill business objectives
* Evaluation of alternatives
* Proposed solution
* Limitations and future directions
* Conclusions

# Project Flow

The below project flow is a typical flow of a project. Adjustment of this flow for a specific project may be discussed during the Project Initiation stage.



**Project initiation (2-4 weeks before the start of the semester)** – ideally, we like to have an initial agreement on project(s) to be done in a semester about 4 weeks or at the minimum 2 weeks prior to the start of that semester. The discussion will be with Dr. Sridhar Nerur who will supervise all projects from the beginning to the end. The discussion will cover the high-level scope of a project, the objectives, and the type of data required and their availability. The organization shall appoint a contact person for each project.

Participants: Organization’s contact person for a project and Dr. Sridhar Nerur.

Meeting type: Skype.

Duration: 1 hour

**Project Scope Meeting (Kick-off meeting, the first week of the semester)** - Meeting between students and organization to confirm: project scope, communication styles, data availability (the type of data, how to retrieve data, when they are available, etc.) and important dates. NDA signing will be completed during this week.

Participants: Organization’s contact person for the project, Dr. Sridhar Nerur, and student team.

Meeting type: Skype.

Duration: 1 hour

**Internal Progress Meeting (periodic) –** the student team will meet with Dr. Nerur at least weekly to report status and get direction and feedback from Dr. Nerur.

Participants: Dr. Sridhar Nerur and student team.

Meeting type: Face to face.

Duration: 1 hour

**Milestone Progress Meeting (monthly)** – the team will meet with the organization contact person, and Dr. Nerur to report monthly progress and project status and receive feedback and direction from the organization’s contact person.

Participants: Organization contact person, Dr. Sridhar Nerur and student team.

Meeting type: Skype.

Duration: 1 hour

**End of semester presentation –** the student team will present the project outcome, key findings, and recommendations.

Participants: Dr. Sridhar Nerur and student team.

Meeting type: Skype

Duration: 1 hour

# Project Submission

Companies and organizations interested in participating in this program are encouraged to submit their project ideas ideally one month before the start of a semester (July for Fall semester), December for Spring, and May for Summer) to the program contact (Dr. Santoso Budiman) through email. The template is included in this document.



The submission should include:

Project name:

Company name:

Company contact person:

Submission date:

Semester (the semester the project is intended for): Fall xxx/Spring xxx/Summer xxx

Project description:

Project objectives:

Data to be provided:

Means to be obtain the data:

NDA needed: Y/N if yes will the company provide the NDA document?

# Contact

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