

IS483 Project Proposal

Project Title

Team Name

Team Logo/Graphics

**Main Track: Business Analytics (BA)**

**Other Tracks (if any):**

# Team Members

|  |  |  |  |
| --- | --- | --- | --- |
| Name | ID | Email | Role |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

# Sponsor and/or Clients (if any)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Name | Email | Organization | Department | Role |
|  |  |  |  |  |
|  |  |  |  |  |
|  |  |  |  |  |

# **Executive Summary**

Please include all necessary information you have at this time to help evaluate the scope, viability, plan, risks, etc. **DO NOT** exceed 3 pages (excluding the cover page) plus an optional Appendix of no more than two pages.

Business analytics (BA) refers to the skills, technologies, practices for continuous iterative exploration and investigation of past business performance to gain insight and drive business planning. Business analytics focuses on developing new insights and understanding of business performance based on data and statistical methods. [[Wikipedia](https://en.wikipedia.org/wiki/Business_analytics)] A Business Analytics project, therefore, has a business aspect as well as an analytics aspect. The goal of a BA project is to generate business value in terms of efficiency, productivity, and/or revenue. The project proposal should reflect these two aspects and clearly articulate the answers to the following six questions:

1. Business Aspect:
   1. What is the business problem you are addressing?
   2. What is the business value you are attempting create?
   3. How will the business benefit from the project?
2. Data Analytics Aspect:
   1. What data will you use?
   2. Where will it come from?
   3. What analytics techniques will you deploy?

Include as many of the following sections and subsections in your proposal as needed and appropriate. Remove all the extraneous text in this template file (including this box) before submitting your proposal.

Describe the main business objectives (*e.g.* *1. Improve the client brand value; 2. Forecast their cashflow; 3. Segment client base for marketing campaigns*) of the project and the proposed analytics techniques to accomplish them (*e.g. 1. Sentiment Analysis of their mentions in the social media; 2. Multiple Linear Regression; 3. K-Means Clustering*). List expected (or hoped for) results and tangible deliverables. Provide only a top-level summary using a few sentences, as described on [Wikipedia](https://en.wikipedia.org/wiki/Executive_summary).

# **Project Overview**: Business Aspects

Expand on the Executive Summary. Specify the client’s background, operations etc. Describe how the project is going to help them.

## Project Description

Summary of the goals: What are you building (briefly, in about three or four sentences)? Examples:

1. Building an e-commerce site selling books using data mining technique to recommend books
2. Dynamic pricing and visualizations of the purchase insights
3. Creating a chatbot for a restaurant for customer service, paying bills, recommending products.

Be as specific about the datasets and their sources as possible. For example, the historical data of the customer purchases or data from social media or data from Singapore geographical data.

## Motivation

What is the reason for embarking on this project? This subsection could be an expansion or extension of the project description. Do not repeat the description; do not use vague adjectives or terms (such as best, user-friendly, commercial quality, scalable, interactive, one- stop solution, efficient, improved productivity, etc.). Each of these adjectives must be quantified; otherwise, you will lose credibility. Do not claim everything, for your project is not likely to solve all problems. You should be able to connect the motivation back to the sponsors’ or customers’ needs.

## Stakeholders

|  |  |
| --- | --- |
| Sponsor | Who initiated the project? Be specific about any relationship between the sponsor and the team. What is your contact person’s role in the organization? Is it a faculty member, CEO, manager, liaison, etc. |
| User | Is the user different from the sponsor? Who is your user? If it is not a person you know, describe the user persona for each user role (e.g. admin, buyer, seller). Projects with no sponsors require a listing of the targeted users for beta testing. |
| Advisors  Practitioners  Mentors | Are there other parties involved in the project? What is their relationship to the project? What interest do they have to the project? Remove this row if not applicable. |

## Deliverables

**Outcomes**: What is delivered (deployed) to the sponsor? Is it a proof of concept? Or release for live usage?

**Value Statement**: What does the sponsor or client get out of supporting this project?

# **Solution Architecture**: Technical Aspects

Figure 1: An example **Solution Architecture** for a News Articles Data Mining project, showing its **steps** / **components**. You can select any visualization techniques like flow charts, data or process flow diagrams etc. to fully describe your system.

The **Solution Architecture** of a BA project describes the translation of the business requirements into an analytics solution vision, with high-level business and/or IT system specifications, and a list of implementation tasks, broken down into **solution steps** or **components**. Provide a description of a discrete and focused business operation or activity and how the proposed analytics solution implements, supports or transforms it.

Typically, a BA project is likely to have three or four distinct components or high-level problems. See the example given in Figure 1. If your proposed project has various components that interact with each other, a **Process Flow** or **Data Flow** diagram is appropriate in this section. If the components are distinct subproblems, you may list them individually along with their features using bullet lists.

Once the solution steps (or components) are identified, describe how each of them is designed and implemented in a subsection. Include as many subsections as there are system components or steps.

## [1. Solution Step / Component Name]

### Description

Start from the data source. Describe the proposed analytics techniques and steps. Reach the final objective. In Figure 2, you can find an example **process flow** diagram of one of the solution steps from Figure 1. Such a **process flow** or **data flow** diagram (or any other appropriate visualization) can be used as the basis for your description of the component.

Figure 2: Example **Process Flow** diagram for the solution step Topic Extraction (from Figure 1). You can select any other appropriate visualization method to represent your system component or step.

### Features and Interactions

If the solution step is to build a component of your system, describe the roles of various users and their interactions with It. Also describe how each component interacts with others. In the industry, such interactions are usually described as [Use Cases](https://en.wikipedia.org/wiki/Use_case). A [UML use case diagram](https://en.wikipedia.org/wiki/Use_case_diagram) (one per component) is appropriate for this purpose. Also relevant are UI mockups or paper prototypes such as storyboards.

Use-case type of description is also appropriate for components that interact with each other (rather than with a user). In this case, one component becomes the “user” of another. If such use-case type of descriptions do not make sense, you can employ any other type of description as long as it is clear.

### Assumptions and Dependencies

List or describe what you may have assumed as available, such as data mining or machine learning techniques and APIs, data properties, state of research etc. Also list external or concurrent team dependencies and constraints.

# **Project Plan**

The Project Plan describes the resources, schedule and major risks in accomplishing the goals of the project. It provides a basic execution description of the project based on the current state of knowledge.

## Project Milestones

Describe the project timeline using key **milestones**. Typically, the implementation of each **Solution Step** or **Component** may be considered a milestone, but you may have a more granular description. Each milestone should have clear goals and functions. Use a tabular from as in Figure 3 to show the anticipated time required for each milestone (which may be a **Solution Step** or **Component**). Although this tabular form is recommended, you may use any visualization from project management tools as long as it is clear. Note that it is possible to work on multiple milestones concurrently, and their timelines may overlap.

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Elapsed Days** | **Start Date** | **End Date** |
| **Milestone 1** |  |  |  |
| Data Collection |  |  |  |
| Data Preprocessing and Cleaning |  |  |  |
| Analytics Steps  (Potentially multiple rows) |  |  |  |
| Evaluation / Optimization |  |  |  |
| Dashboard Development |  |  |  |
| Testing **Milestone 1** |  |  |  |
| Integrated Solution (Demo) |  |  |  |
| Integration / UAT Tests |  |  |  |
| Final Report and Poster |  |  |  |

Figure 3: Example Process Flow diagram for the solution step Topic Extraction (from Figure 1)

## Tools and Techniques:

Define the techniques (example: clustering, OCR, etc.,), tools (R, Tableau, Python etc.,) and the need for that technique. For example. Tableau for visualizations. List the programming languages, frameworks, APIs, platforms, OS, etc. that you are planning to employ in building your system. You may break this down by solution steps/components or milestones.

## Risks:

Identify the assumptions and risks specific to this project, its stakeholders, schedule, team, technology constraints, etc. Do not state generic risk, such as “requirement may change,” but be specific to the current project and sponsor. For each risk, list possible mitigation strategies.

## Resource and Reference:

List the resources and training you need to complete the project successfully. Training on programming (books, web pages, hardware, software, etc.), and research on technology or the solution design can be indicated as references, pointing to journal/conference articles, online resources, API documentation etc.