Project Charter

Drug Profile and Interactions

**INFT3000 – Data Analytics Capstone**

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**January 12th, 2024**

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# Charter Introduction

## Document Change Control

|  |  |  |  |
| --- | --- | --- | --- |
| Revision Number | Date of Issue | Author(s) | Brief Description of Change |
| 1.0 | January 24th, 2024 | James Laurence | Document Creation |
| 1.1 | January 28th, 2024 | James Laurence | Document Standards |
| 1.2 | January 28th, 2024 | Chris Whalen | Document Standards |
| 1.3 | January 28th, 2024 | Louise Fear | Document Standards |
| 1.4 | January 28th, 2024 | Gabriela Mkonde | Document Standards |
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## Executive Summary

**Project Objective**

The Drug Profile and Interaction Project is a comprehensive initiative to offer valuable insights into prescription and over-the-counter drug interactions and potential side effects. By leveraging advanced predictive modelling techniques, the project aims to empower patients and healthcare professionals with the ability to anticipate potential side effects resulting from drug interactions.

The project’s objectives are multifaceted, encompassing several vital deliverables. These include the approval of the Project Charter, the deployment of the database, and the management of data through acquisition, validation, and import processes. The project also involves the development of an algorithm for predicting drug interactions and optimizing these prediction results.

In addition, the project includes the development of a user-friendly interface, engagement with stakeholders to update the Project Charter based on feedback, and implementation of a risk management plan and risk register to ensure the project has the highest standards of quality assurance measures will be put in place. Documentation that provides comprehensive training and user support material will be created. This holistic approach ensures that the project meets its immediate goals and lays the groundwork for ongoing success and innovation in drug interaction prediction.

## Authorization

This project charter formally authorizes the existence of the Drug Profile and Interactions Project and provides the project manager with the authority to apply organizational resources to project activities described herein. If there is a change in the project scope, the project charter will be updated and submitted for re-approval.

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George Campanis Date

Project Sponsor

Faculty Advisor/Instructor, Nova Scotia Community College

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James Laurence Date

Project Manager

Student, Nova Scotia Community College

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Louise Fear Date

Team Lead

Student, Nova Scotia Community College

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Gabriela Mkonde Date

Team Lead

Student, Nova Scotia Community College



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Chris Whalen Date

Team Lead

Student, Nova Scotia Community College

# Project Overview

## Project Summary

This project is being devised to implement a database which enables queries for over the counter and prescriptions drugs. The first phase will enable queries which can provide drug profile information like drug names, ingredients, adverse effects, dosages, molecular structure and more. The second phase will create a predictive model that will predict if there will be any drug interactions that could occur between multiple drugs being administered. Each phase builds upon the previous, culminating in a robust drug identification and prediction system. This system will serve as an efficient and accurate resource for patients and healthcare providers.

### Project Goals, Business Outcomes and Objectives

The following table outlines the Project Goals, Measurable Objectives, and Business Outcomes.

|  | Goals | Objectives | Business Outcomes |
| --- | --- | --- | --- |
| 1 | Project Charter Approval | * Choose Project Topic * Project Charter Document * Find Data Source * Project Schedule * Project Charter Presentation | * Project Charter Documentation |
| 2 | Data Management | * Data Acquisition   + Data Extraction   + Data Cleaning * Attribute Selection   + XML Attribute Extraction   + XML Data Extraction   + Convert XML into CSV | * Data Acquisition, Validation, and Import |
| 3 | Back-End Development | * Requirement Gathering   + Data and Features * Database Documentation   + Entity Relationship Diagram   + Data Dictionary   + Schema SQL Script   + Database Testing | * Database Deployment |
| 4 | Front-End Development | * User Interface Design * User Interface Implementation * User Interface Testing | * User Interface (UI) |
| 5 | Predictive Modelling | * Drug Interaction Algorithm Development * Drug Interaction Algorithm Testing | * Drug Interaction Predictive Algorithm * Optimized Interaction Prediction Results |
| 6 | Stakeholder Engagement | * Stakeholder Communication   + Meetings   + Feedback Sessions | * Project Charter Updated as per Stakeholder feedback |
| 7 | Risk Management | * Risk Assessment * Risk Management Plan | * Risk Management Plan and Risk Register |
| 8 | Quality Assurance | * Quality Assurance Plan * Regular Quality Reviews | * Quality Assurance Report   + QA Review Reports |
| 9 | Training and Support | * Training Materials * Provision of User Support | * Training Documentation * User Support Documentation |

### Project Scope

The scope of this project is to develop a database that can be queried for information related to over the counter and prescriptive drugs. A predictive model which can provide potential side effects from drug interactions from over the counter and prescription drugs.

### Scope Definition

Overall deliverables within the project scope consist of the following:

Data Management: The acquisition, cleaning, validation and loading of all available drugs, and their applicable information (drug names, ingredients, adverse effects, dosages, indications, contraindications, interactions, molecular composition, metabolic pathways).

Back-End Development: Creation of database that can store, manage and query the data.

Predictive Modelling: Creation, testing and implementation of an algorithm that would accurately predict possible drug interactions based on the data.

Front-End Development: Creation, design and implement a user-friendly interface where users can query the database for drug information and use the predictive model to detect interactions.

Quality Assurance and Risk Management: These will help ensure the quality of the project deliverables while managing potential risks.

Stakeholder Engagement: During the project's duration, there will be continuous communication with stakeholders to gather feedback and make the necessary adjustments.

Training and Support: Creation of documentation that will provide back-end development support and front-end training materials.

### Boundaries

The following table contains the activities that are in and out of the project scope.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Activities in Scope |  | Activities Out of Scope |
| 1 | Project Charter Documentation | 1 | Automation of new data and back-end updates to display the new information on the front-end interface |
|  | Activities in Scope |  | Activities Out of Scope |
| 2 | Database Deployment | 2 | Risk Management Plan and Risk Register |
| 3 | Data Optimization and SQL Enhancement | 3 | Training Documentation and User Support Materials |
| 4 | Drug Interaction Prediction Algorithm | 4 | Quality Assurance Report with QA Review Reports |
| 5 | Revised Project Charter and Stakeholder Updates | 5 | User Interface Development |
| 6 | Team Documentation and Updates |  |  |

In defining the project scope, certain deliverables are currently identified as out of scope to maintain project focus, reduce ambiguity, and prevent overextension. Front-end development of a user interface may be unavailable because of resource constraints and absence of a specialized front-end team within the current project organization. Currently, the project team consists of database management and data analysis subject-matter experts and the inclusion of an intuitive and sophisticated user interface will require additional members who possess these skillsets.

The data and modelling automation process are considered out of the project’s current boundaries based on time, data accessibility and software constraints. The database will have infrequent updates, which prevents real-time automation processes. Additionally, the data for this project is facilitated through a school account, limiting the future ability to implement certain automation functionalities that would carry through into future years.

Risk Management plans, Risk Register, supplemental Training Documentation and Quality Assurance Reports have been identified as out of scope due to time constraints within the allotted project timeframe of three months. Considering the depth of the project and the resources required for software implementation, the ability to engage in comprehensive documentation is limited at this juncture. By focusing on the in-scope activities, this allows the team to focus on the most critical aspects of database and algorithm development, testing and deployment.

## Milestones

The following table contains the project milestones, description and expected date of completion.

|  |  |  |  |
| --- | --- | --- | --- |
|  | Project Milestone | Description | Expected Date |
| 1 | Project Charter Document | Completion of the project charter.  MINI-MILESTONES   * Outlines project specifics.   + Goals, Objectives, Outcomes.   + Scope, stakeholders   + High-level requirements. | 30-Jan-24 |
| 2 | Project Schedule | Finalization of the project timeline.   * Deliverable Start and End Dates. * Deliverable Milestones. | 30-Jan-24 |
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|  | Project Milestone | Description | Expected Date |
| 3 | Entity Relationship Diagram  (Visual Paradigm) | Development of a graphical model depicting database entities and their associations.  MINI-MILESTONES   * Identify the key entities, relationships, and data structure of the data. * Understand the relationships between these entities. * Draw a rough sketch of the ERD. * Label the entities and relationships. * Review the ERD with the team. * Make necessary changes based on feedback. * Review updated version of ERD with the team. * Make necessary changes based on feedback. * Finalize the ERD. | 09-Mar-24 |
| 4 | Data Dictionary | Compilation of a comprehensive list of data elements, their definitions, and relationships.  MINI-MILESTONES   * List all the data elements.   + Write a clear definition for each data element.   + Identify the relationships between different data elements.   + Document these relationships in a clear and concise manner. * Review the Data Dictionary with the team.   + Ensure the definitions are understandable to all team members. * Make necessary changes based on feedback. * Finalize the Data Dictionary. | 09-Mar-24 |
| 5 | Data Flow Diagram (DFD) | Document featuring the ERD, Data Flow Diagram, and Data Dictionary for the project. MINI-MILESTONES   * Use the ERD and Data Dictionary to create a DFD. * Ensure the DFD accurately represents data flow. * Review the DFD with the team. * Make necessary changes based on feedback. * Review updated DFD with the team. * Make necessary changes based on feedback. * Finalize the DFD. | 09-Mar-24 |
| 6 | Schema SQL Script | Creation of an SQL Script that will create the database needed for the project in SQL Server  MINI-MILESTONES   * Write a script that creates the necessary tables and relationships.   + Ensure the script follows SQL best practices. * Run the script on a test database.   + Check if the tables and relationships are created correctly. * Update script and Validate results. * Retest and finalize SQL Script. | 09-Mar-24 |
|  | Project Milestone | Description | Expected Date |
| 7 | Database Testing | Testing the Database to see if the ERD can be executed properly.  MINI-MILESTONES   * Use the ERD/Data Dictionary to test the database structure. * Test Data (include sample/real data) against Database structure. * Validate and Retest. * Function Testing - ACID Properties:   + Atomicity, Consistency, Isolation, Durability.   + Data Integrity * Document the testing process and results. | 09-Mar-24 |
| 8 | Data Acquisition/Data ETL | Downloading all available data and importing it into SQL Server under the appropriate entities.  MINI-MILESTONES   * Identify and list all data sources. * Develop a plan for data download.   + Identify the necessary tools and permissions.   + Schedule the download to minimize impact on network traffic. * Download the data.   + Monitor the download process for any issues   Extraction, Cleaning, Validation and Importing of data into the SQL Database and SSIS.  MINI-MILESTONES   * Design the ETL process.   + Identify the data transformations needed.   + Plan the data cleaning steps. * Extract the data (future data updates)   + Use the designed ETL process to extract data. * Clean the data.   + Apply the planned cleaning steps. * Validate the data.   + Check the data for consistency and integrity. * Import the data into the SQL Database | 09-Mar-24 |
| 10 | SQL Query Execution | Execution of the SQL Query to see if it works or not.  MINI-MILESTONES   * Write the SQL query.   + Define the data requirements.   + Write the query to meet these requirements. * Test the SQL query on a small data set.   + Identify a representative subset of data for testing.   + Run the query and check the results for accuracy. * Execute the SQL query on the full data set.   + Monitor the query execution for any issues. | 09-Mar-24 |
|  |  |  |  |
|  |  |  |  |
|  | Project Milestone | Description | Expected Date |
| 11 | Drug Interaction Algorithm Deployment | Create a developed algorithm based off the project’s data that is operational and accessible for practical use.  MINI-MILESTONES   * Develop the algorithm.   + Define the algorithm requirements based on the project’s data.   + Write the algorithm code. * Test the algorithm with a subset of data.   + Identify a representative subset of data for testing.   + Run the algorithm and check the results for accuracy. * Refine the algorithm based on test results.   + Identify any issues or inefficiencies in the algorithm.   + Refine the algorithm code to address these issues. * Deploy the algorithm.   + Prepare the deployment environment.   + Deploy the algorithm code. | 15-Mar-24 |
| 12 | Drug Interaction Testing | Testing of the developed algorithm.  MINI-MILESTONES   * Verify the algorithm is operational and accessible.   + Test the deployed algorithm for functionality.   + Check the accessibility of the algorithm for practical use. * Check Model accuracy (80% goal)   + Mean Absolute Error (MAE)   + Root Mean Squared Error (RMSE) | 15-Mar-24 |
| 13 | User Interface Design | Designing a User Interface that can be used for finding information related to certain types of drugs.  MINI-MILESTONES   * Conduct research on best practices for drug information UI. * Sketch initial design ideas.   + Gather feedback on sketches from team members. * Refine sketches based on feedback. * Create a detailed UI design (soft copy). * Review and finalize the design. | 22-Mar-24 |
| 14 | User Interface Implementation | Implementation of the UI  MINI-MILESTONES   * Set up the development environment. * Break down the UI design into components.   + Implement each component one by one.   + Integrate all components.   + Regularly commit and push changes to the version control system. | 22-Mar-24 |
|  |  |  |  |
|  |  |  |  |
|  | Project Milestone | Description | Expected Date |
| 15 | User Interface Testing | Testing the UI to see if it is executable or not.  MINI-MILESTONES   * Develop a test plan.   + Write test cases for each component. * Execute test cases.   + Document any issues found. * Validate and retest. * Conduct a final round of testing. | 22-Mar-24 |
| 16 | Stakeholder Communication | Meeting with the stakeholder to discuss the current state of the project, along with where to go next.  MINI-MILESTONES   * Prepare a project status update. * Schedule a meeting with the stakeholder. * Present the update and discuss next steps. * Gather feedback from the stakeholder. * Incorporate feedback into the project plan. | 28-Mar-24 |
| 17 | Risk Assessment  (currently out of scope) | Identify, Evaluate and Prioritize any potential risks or uncertainties to determine their impact and likelihood.  MINI-MILESTONES   * Identify potential risks. * Evaluate the impact and likelihood of each risk. * Prioritize risks based on their impact and likelihood. * Document the risk assessment. | 28-Mar-24 |
| 18 | Risk Management Plan  (currently out of scope) | Structured document outlining our approach to identifying, assessing, and/or mitigating any potential risks  MINI-MILESTONES   * Develop strategies for mitigating high-priority risks. * Document the risk management plan. * Review and update the plan regularly. * Communicate the plan to the team. | 28-Mar-24 |
| 19 | Quality Assurance Plan  (currently out of scope) | Document that outlines the processes, standards, and activities a project will follow to ensure that everything meets the specified requirements.  MINI-MILESTONES   * Define quality standards for the project. * Document the QA processes and activities. * Review and update the plan as needed. * Communicate the plan to the team. | 5-Apr-24 |
| 20 | Regular Quality Reviews  (currently out of scope) | Periodic assessments/evaluations of processes, products and/or services to ensure they meet the predefined quality standards.  MINI-MILESTONES   * Schedule regular quality review meetings. * Prepare by gathering necessary data. * Discuss the results and plan improvements. * Document the review outcomes. | 5-Apr-24 |
|  | Project Milestone | Description | Expected Date |
| 21 | Training Materials  (currently out of scope) | Resources designed and developed to facilitate the learning and development of individuals in a particular subject and/or skill.  MINI-MILESTONES   * Identify the necessary skills and knowledge for using the product. * Develop training materials covering these areas. * Review and revise the materials as needed. * Test the materials with a small group. * Finalize the training materials. | 12-Apr-24 |
| 22 | Provision of User Support  (currently out of scope) | Offering of assistance, guidance, and solutions to individuals and/or customers who are using a product.  MINI-MILESTONES   * Develop a user support plan. * Train team members on providing user support. * Implement the user support plan. * Monitor user feedback. * Adjust the support plan as needed. | 12-Apr-24 |
| 23 | Final Report and Presentation | Presentation of the Final Project with all reports, visualizations and machine learning completed. | 12-Apr-24 |

## Deliverables

The following table outlines the Key Project Deliverables with expected requirements.

|  |  |
| --- | --- |
| **Project Deliverable 1: Project Charter and Presentation** | |
| **Stakeholder:** | Project Sponsor, Project Management, all Team Leads |
| **Description:** | Create a project charter and corresponding presentation for a project in the pharmaceutical domain. This document defines project goals, scope, milestones, risks, and organizational specifics, ensuring a transparent framework. This deliverable serves the dual purpose of aligning the team’s understanding and outlining the project for project management approval. |
| **Acceptance Criteria:** | Upon project management approval. |
| **Due Date:** | 2024-01-30 |
| **Project Deliverable 2: Database Deployment** | |
| **Stakeholder:** | Project Sponsor, Project Management, Data Management Team |
| **Description:** | Deploy databases with back-end development. Gather requirements, define data, and create essential documentation. Also including tests prior to deployment. |
| **Acceptance Criteria:** | Upon completion of scrum meetings and project management sign-off. |
| **Due Date:** | 2024-02-21 |
|  | |
| **Project Deliverable 3: Data Optimization and SQL Enhancement** | |
| **Stakeholder:** | Project Sponsor, Project Management, Data Management Team |
| **Description:** | Refining data management practices through streamlined data acquisition, ETL processes, and SQL optimization. It utilizes efficient data extraction, cleaning, and validation, leading to improved SQL query executions for more efficient data retrieval. |
| **Acceptance Criteria:** | Successful implementation of streamlined data acquisition, validation, and import procedures. Improved efficiency and accuracy using SQL queries. |
| **Due Date:** | 2024-02-29 |
| **Project Deliverable 4: Drug Interaction Prediction Algorithm** | |
| **Stakeholder:** | Project Sponsor, Project Management, Data Analytics Team |
| **Description:** | Develop and test a drug interaction prediction algorithm using predictive modelling. Optimize algorithm for accurate and efficient interaction predictions. |
| **Acceptance Criteria:** | Successful completion of a machine learning algorithm that uses predictive modelling techniques to predict drug interactions, ensuring rigorous testing and high accuracy levels. |
| **Due Date:** | 2024-03-15 |
| **Project Deliverable 5: User Interface Development** | |
| **Stakeholder:** | Project Sponsor, Project Management, Front-end Development Team |
| **Description:** | Design, implement, and test the User Interface for the project, ensuring a seamless and user-friendly experience. |
| **Acceptance Criteria:** | Upon successful implementation of an interactive and visually appealing user interface and passing all criteria outlined in the testing phase, ensuring it meets the project standards. |
| **Due Date:** | 2024-04-12 |
| **Project Deliverable 6: Revised Project Charter & Stakeholder Updates** | |
| **Stakeholder:** | Project Sponsor, Project Management, All Team Leads |
| **Description:** | Revise the Project Charter based on risk assessment outcomes. Integrate findings from the risk management plan and risk register into the updated charter. |
| **Acceptance Criteria:** | Successful revisions, incorporating all insights and outcomes derived from the risk assessment process, the risk register must be seamlessly integrated into the updated charter, achieving all milestones related to the revisions, approval upon the project management team. |
| **Due Date:** | 2024-04-12 |
| **Project Deliverable 7: Risk Management Plan and Risk Register** | |
| **Stakeholder:** | Project Sponsor, Project Management, all Team Leads |
| **Description:** | Develop a comprehensive risk management plan and risk register. Facilitate stakeholder communication through meetings and feedback sessions. Update the project charter based on stakeholder feedback. |
| **Acceptance Criteria:** | Upon successful completion of the risk assessment, risk management plan and risk register following these criteria: Identifying and documenting potential risks associated with the project, developing a comprehensive plan outlining strategies for risk identification, ensuring that these documents all align with the overall objectives and scope of the project. |
| **Due Date:** | 2024-03-28 |
|  |  |
| **Project Deliverable 8: Quality Assurance Report with QA Review Reports** | |
| **Stakeholder:** | Project Sponsor, Project Management, all Team Leads |
| **Description:** | Generate a comprehensive Quality Assurance report incorporating findings from regular quality reviews. The deliverable included detailed AQ review reports, offering insights into specific evaluations conducted throughout the project. |
| **Acceptance Criteria:** | Upon successful completion of the detailed quality assurance plan, conducting periodic reviews to assess project elements, completing a comprehensive report summarizing the outcomes of the quality assurance efforts, and providing a detailed report for each quality review conducted. |
| **Due Date:** | 2024-04-05 |
| **Project Deliverable 9: Training Documentation and User Support Materials** | |
| **Stakeholder:** | Project Sponsor, Project Management, all Team Leads |
| **Description:** | Creating essential training documentation to equip new users with project knowledge. It also includes user support materials to provide ongoing assistance, ensuring users are well-supported throughout the project. |
| **Acceptance Criteria:** | Upon successful completion of all training material documents, provision of user supplemental documents, training services (tutorials and other similar materials) |
| **Due Date:** | 2024-04-12 |
| **Project Deliverable 9: Team Documentation and Updates** | |
| **Stakeholder:** | Project Sponsor, Project Management, all Team Leads |
| **Description:** | Regular compilation of team documentation, include weekly Scrum meeting minutes and monthly project updates. These documents serve as a dynamic record, tracking tasks, timelines, and project progress, fostering effective communication and collaboration within the team. |
| **Acceptance Criteria:** | Upon successful completion and submission of all weekly scrum minute documents, and detailed monthly report updates. |
| **Due Date:** | 2024-04-12 |

## Project Risks, Assumptions, and Constraints

### Risks

This risk assessment does not replace a full risk assessment, which would have been completed during project proposal drafting. The following table contains identified risks and possible mitigation options.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **Risk Description** | **Probability (H/M/L)** | **Impact (H/M/L)** | **Risk Management Plan** | **Office of Primary Interest** |
| 1 | Incomplete or inaccurate medication data that produce unreliable project results | Medium | High | Create strict procedures for data validation and verification, and work closely with DrugBank to ensure data accuracy. | Data Management Team |
| 2 | Project milestone delays | High | Medium | Develop a contingency plan, maintain regular communication, and monitor project timeline closely | Project Management Team |
| 3 | Inaccurate table relationships or duplicate values within tables | Medium | Medium | Conduct thorough data cleaning and quality checks, implementing and checking that data is in third normal form | Data Management Team |
|  | **Risk Description** | **Probability (H/M/L)** | **Impact (H/M/L)** | **Risk Management Plan** | **Office of Primary Interest** |
| 4 | Incorrect database building or errors when importing data to database | Medium | High | Implement error handling mechanisms, regularly test and update scripts as needed | Database Management Team |
| 5 | Hardware Failures | Low | High | Ensure regular hardware maintenance and backups | IT Operations |
| 6 | Software Failures | Low | High | Regularly update and patch software, have backup software and data backups | IT Operations |
| 7 | Inaccurate Predictive Model or Insufficient Data to Create Model | Medium | High | Continuously monitor and validate predictive model, refining as needed | Data Analysis Team |

### Assumptions

The following table lists the items that cannot be proven or demonstrated when this project charter was prepared:

|  | Assumptions |
| --- | --- |
| 1 | DrugBank will provide timely and accurate drug interaction data as per the agreed schedule and format. |
| 2 | The project team will have access to the necessary technical infrastructure and tools for data analysis and tool development. |
| 3 | The timeline provides reasonable time intervals for each deliverable and expected milestones. |
| 4 | Project Department teams have the required quantity of members and are subject matter experts in their field and department. |
| 5 | The chosen technologies are assumed to remain stable and reliable throughout the course of the project |
| 6 | Data collection methods are assumed to adhere to standard scientific practices |

### Constraints

The constraints for the project are listed in the table below:

|  | Category | Constraints |
| --- | --- | --- |
| 1 | Time | Task progression needs to be recorded and documented in Toggl to show how much time members put into the project's tasks. |
| 2 | Time | Scrum Meeting Reports and Notes should be done on a weekly basis, so the project progression stays consistent. |
| 3 | Time | Project Charter documentation and schedule should be completed and presented to the stakeholder by the end of January. |
| 4 | Time | Two monthly Status reports with the stakeholder should be conducted, one should be done to keep the stakeholder involved in the project progression; one near the end of February, while the other should be done near the end of March. |
| 5 | Time | The Final Report and Presentation, along with all visualizations necessary, should be completed and prepared by early-April at the latest, no extensions beyond April 12th. |
| 6 | Technical | The following tools and software **MUST** be used: Python, R, SQL Server and Toggl. |
| 7 | Technical | Predictive Model will require a high degree of accuracy to provide statistically relevant information |
| 8 | Data | Historical data must be accurately extracted, cleaned, validated and loaded into database |
| 9 | Data | Data should be able to provide stakeholders with the ability to query the data and also utilize modelling to predict possible drug interactions. |
| 10 | Data | Access to DrugBank data is limited to academic purposes only. |
| 11 | Documentation | Documentation should represent the data, data structure, database structure and data flow. |
| 12 | Documentation | Changes in database implementation must be captured in documentation revisions. |

# Project Organization

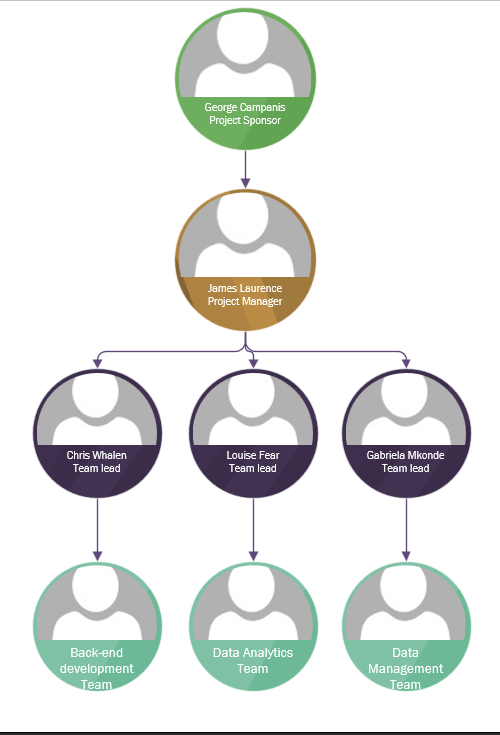
## Governance

The project governance will be set up to guarantee accountability and clear decision-making. This will involve the following governing bodies:

* Project Sponsor: George Campanis provides the vision and ensures that the project aligns with project goals and objectives.
* Project Manager: James Laurence oversees the entire undertaking and ensures that the goals, schedules, and budget guidelines are followed.
* Team leads: Chris Whalen, Louise Fear, and Gabriela Mkonde oversee their departments and motivate their teams to successfully complete project tasks on time and under budget.
* Project Steering/Review Committee: This committee consists of the project sponsor, project manager and all team leaders. The project will be evaluated regularly to ensure it stays on track while staying within its scope, boundaries, and constraints. This committee will set project strategies, monitor project advancement, and project direction through crucial decision-making stages.

## Team Structure

The project team's duties are designed to serve the strategic goals of the project, and they are arranged to promote effective communication and workflow. An organizational chart that shows the team members' hierarchies and dependencies is shown below. The goal of this structure is to make sure that every function is linked to the others, facilitating smooth movement toward project objectives.



## Roles and Responsibilities

Clear roles and responsibilities for each team member and stakeholder are essential to the success of our project. These duties are listed in the table below, which promotes accountability and efficient teamwork. It guarantees that decisions and activities are coordinated to effectively accomplish the aims of our project because it is in line with our governance and team structure.

| Project Role | Responsibilities | Assigned to |
| --- | --- | --- |
| Project Manager | * Overseeing project planning and execution. * Managing the project budget and timeline. * Coordinating between the project sponsor, team leads, and other stakeholders. * Ensuring project goals are met. | James Laurence |
| Team Lead (Back-end development) | * Creating the ERD, data dictionary and DDL scripts * Requirement Gathering   + Data and Features * Database Testing | Chris Whalen |
| Team Lead (Data analytics) | * Analyze datasets, create predictive models, and extract actionable insights. * Ensuring data accuracy and relevancy for the project’s needs. * Presenting data findings to stakeholders for strategic decision-making. | Louise Fear |
| Team Lead (Data Management) | * manage the ETL processes and ensure seamless data import and integration into the project's systems. * enforce protocols for data cleaning and validation to maintain the accuracy, consistency, and reliability of the data throughout its lifecycle. * Oversee the maintenance of database systems, execute complex SQL queries, and ensure data retrieval processes are optimized for performance | Gabriela Mkonde |
| Project Review Committee | * Reviewing project progress, providing feedback, and ensuring project alignment with initial goals. * Recommending adjustments to the project plan and scope as necessary. | George, James, Chris, Louise and Gabriela |

## Facilities and Resources

To support our team's different duties, our project requires a variety of specialist software and tools. To manage the several phases of data processing, reporting, visualization, documentation, and front-end development, these resources are necessary. Within our project framework, the specific tools and their functions are outlined as follows:

Documentation:

* MS Office 365 – document creation, collaboration, and communication.
* MS Project – creating GANTT chart.
* MS Visio – organizational chart creation.

Back-end Development:

* MS SQL Server – Data storage

Data Processing (Extraction, Transformation, and Loading of data – ETL):

* R/Python – Data manipulation, data processing and statistical analysis.

Predictive Modelling:

* R/Python – Build, test and deploy predictive model.

Front-end development:

* HTML, CSS, JS – structuring, styling and interactivity for web user interface.

Visualization / Reporting:

* MS PowerBi – Building dashboards, Data modelling and Feature reporting.
* Report Builder & Report server – development, management and deployment of reports.

Automation (Currently out of scope)

* PowerShell and SSIS – automation and execution of data workflows
* MS Visual Studio – SSIS package development and management

# Project References

More information concerning this project data sources can be found in the following resources:

| Document Title | Version # | Date | Author and Organization | Location (link or path) |
| --- | --- | --- | --- | --- |
| DrugBank Database | 1 | 16-Jan-2024 | DrugBank | <https://go.drugbank.com/releases/latest#full> |

# References

Mehta, D. (2023, August 25). *Database Testing: What it is, Why & Best Practices*. Retrieved from testsigma.com: https://testsigma.com/blog/database-testing/

# Appendix

## Project Schedule