University of British Columbia, Vancouver
Department of Computer Science

CPSC 304 Project Cover Page

Milestone #: ____1____

Date: __July 15, 2025__

Group Number: ____28____

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By typing our names and student numbers in the above table, we certify that the work in the attached assignment was performed solely by those whose names and student IDs are included above. (In the case of Project Milestone 0, the main purpose of this page is for you to let us know your e-mail address, and then let us assign you to a TA for your project supervisor.)

In addition, we indicate that we are fully aware of the rules and consequences of plagiarism, as set forth by the Department of Computer Science and the University of British Columbia

2. A brief project description answering these questions:
a. What is the domain of the application? Describe it.

The domain of an application is finance, specifically in algorithmic trading and strategy backtesting. The application stimulates and evaluates trading strategies using historical financial market data.

b. What aspects of the domain are modeled by the database?

The application supports financial analytics, quantitative trading, and serves as a decision support system for investors, researchers or students. For example, a trader or analyst need to evaluate strategies based on past market performance to improve or validate decision making. The database models many components of algorithmic trading system:

- User accounts: track individual users portfolio and their activity
- Strategies: describing how users want to trade with predefined or custom strategy
- Parameter: inputs for each strategy stored as key-pair value
- Market data: ticker symbols and historical prices
- Backtest: run a strategy over specific time period and ticker
- Trade: buy/sell operations during backtest
- Report: summary statistics and performance metrics

3. Database specifications: (3-5 sentences)
a. What functionality will the database provide?

Store user profiles, strategies, backtest history, and performance reports
Enable user to submit their custom strategies with specific inputs
Record parameter configurations and trade level detail
Support querying and comparison of performance metrics across strategies
Allow data to be reused for multiple strategy run

4. Description of the application platform: (2-3 sentences)
a. What database will your project use (department provided Oracle, MySQL, etc.)?

We will use the Oracle database provided by the department

b. What is your expected application technology stack (i.e., what programming languages and libraries do you want to use)?

The backend logic (e.g., strategy processing, data fetching, metrics calculation) will be implemented in C++, while the web interface will use PHP to interact with the Oracle database and render results. The frontend may include HTML, JavaScript

5. An ER diagram for the database that your application will use.
a. Please limit your diagram to a letter size page (8.5 x 11 inches).
(Attach to the next page)
6. Your E/R diagram should adhere to the expectations listed above.

7. Other comments, as appropriate, to explain your project.
This project helps student understand how relational database can be applied to dynamic, real world problem like financial modeling