## Phase 1: Project Proposal

**Group**: 12

**Member**(s): Arsh Parmar (jk2680)

**Date**: 02/05/2023

**Course**: CS 301

**Instructor**: Dr. Fay Zhong

**Project Description**

**Topic/Subject**

Banking software application.

**Overview**

For this project, I will be working to develop a console application simulating a bank’s software, including all basic functionalities that such a software should provide. This includes but is not limited to the following software interfaces: **Accounting** (with local database), **Transactions**, **Transfers**, **Debit, Credit.**

**Interfaces**

The CLI based application should provide interfaces to (computationally) efficiently perform the following services:

1. **Accounting**: Creating an account, deleting an account, adding money to an account, managing the features of an account (account type, allowed transaction methods, etc.). (LOW TARGET)
2. **Transactions**: Making transactions to specific accounts (not other users) for purposes such as bill payments, purchases, etc. The receiving accounts will be a different type of account (vendor accounts). (DESIRABLE TARGET #1)
3. **Transfer**: This service provides account-to-account transfers. (DESIRABLE TARGET #2)
4. **Debit/Credit**: This service provides debit and credit services (debit from the user account, and credit from the bank). This will reflect in the account data of each user. (DESIRABLE TARGET #3)

Additional services (Nonessential) would be:

1. **User Interaction**: This service provides answers to some basic user queries. (HIGH TARGET)
2. **Usage Analytics**: This service provides analytics of user account usage (transactions, payments etc.) (EXTRA)

**Data Management**

I plan to implement these interfaces using **C++** combined with either a **text database** or a **local SQL database** (whichever is suitable for the requirements). In the case of a text database, I will use C++ fstreams and store data in local text files. In the case of SQL, the SQLAPI++ library of C++ will be utilized.

**Development Schedule**

**Week 4-5:** Development and testing of Low Target (Accounting).

**Week 6-9:** Development and testing of Desirable Targets (Transactions, Transfers, Debit/Credit).

**Week 10-11:** QA, debugging and optimization of existing code.

**Week 12-15:** Development and testing of nonessential services (User interaction, analytics).

**Roles:**

I will be solely responsible for the design, development, testing and submission of the project work.

**Assessment**

The application will be useful for managing locally stored accounts. It can be used by a person to track their personal transactions and can be used by multiple people to do the same with each other.

*Judging the application***:** The design will be a success if the various components of the application are able to work together on a singular database (or multiple linked databases) and are able to efficiently store and retrieve data from the database.