

**SE 3K04/3M04 (Fall 2006)**  
**Request for Proposal - Automated Banking Machine**  
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## **1 Background**

MacBank Inc. was founded in 1872, 5 years after the founding of Mac town. Up until now, MacBank was able to assess all of the different banking needs of Mac town citizens and provide exceptional customer service. Today, MacBank services approximately 4000 clients from the business and private sectors. It expects the number of clients to grow at a rate of at least 4% a year due to the increasing number of citizens moving to the suburbs from big cities and specifically to Mac town.

MacBank, services only customers who have accounts with MacBank, but expects to start servicing clients from other banks by the year 2010. Currently, MacBank allows its clients to hold up to four accounts per person (or business). The different types of accounts are:

- Chequing account;
- Savings account;
- Line of credit; and
- Credit Card account.

Presently, MacBank has only one main branch, which is located at the heart of the Mac town business centre. MacBank employs five bank tellers who are responsible for assisting the clients with their basic banking activities. These activities include, but are not limited to, the following:

- Withdrawing money;
- Depositing money;
- Transferring money between different accounts;
- Exchanging currency; and
- Paying bills.

Recently, the bank management noticed that the waiting times for service by one of the tellers have significantly increased, and at peak hours can reach 25-30 minutes. MacBank management identified two main reasons for this significant increase in waiting times:

1. Increase in Mac town population; and
2. Increase in demand for basic banking activities, such as – withdrawals, deposits and transfers.

After assessing the situation, MacBank management identified three main courses of action:

1. Move operations to a different location and employ more tellers;
2. Open another branch;
3. Automate the basic banking services using an Automated Banking Machine (ABM).

A cost benefit analysis conducted by the bank management indicated that the most cost effective solution, considering the growth rate of bank clientele, would be option number 3 – automating the basic banking services.

## **2 Request for Proposal**

MacBank management identified McMaster University ECE students as the best candidates for developing the software for their ABM and are looking for exceptional proposals for developing software that will satisfy the following general requirements

### **2.1 Brief Hardware Specification**

MacBank Information Technology personnel conducted market research on ABM's and identified that the following hardware is essential to any ABM:

- Magnetic stripe reader (card reader);
- Customer console (display and keyboard);
- Envelope depositing slot;
- Cash counter and dispenser;
- Statement Printer;
- Safe; and
- A key-operated switch for system start-up/shutdown.

All of the hardware was supplied with the relevant software libraries which include the different functions to operate it.

### **2.2 General Software Requirements**

The ABM software system is required to:

- Check the authentication of the card holder users to use the ABM system services.
- Allow the authorized card holders to make transactions on the accounts linked to the corresponding card, such as: view and/or print account balances; make cash withdrawal; deposit cash or cheque; transfer money between two accounts.
- Keep track of the amount of money the ABM machine contains in its stock and alert the bank staff when the stock is equal, or less than \$10,000.
- Allow the authorized bank staff to re-stock the machine and perform the required maintenance.
- Communicate each transaction with the external bank system and obtain confirmation for the transactions.
- Start or stop its services to the customers, using a key switch which is accessible to the bank staff.