**Homework 5**

4.5 Using the technique suggested here, where natural language descriptions are presented in a standard format, write plausible user requirements for the following functions:

* **An unattended petrol (gas) pump that includes a credit card reader. The customer swipes the card through the reader then specifies the amount of fuel required. The fuel is delivered and the customer’s account is debited.**

The system shall be sure that there is fuel available.

The system shall determine the price for the specified amount of fuel.

The system shall deliver the correct amount of fuel.

The system shall shut off once specified fuel amount is reached.

The system shall debit the customer’s account for the price of the amount of fuel delivered.

* **The cash-dispensing function in a bank ATM.**

The function shall verify the validity of the card used.

The function shall verify that the PIN used matches the specified card and account.

The function shall make sure the account has the amount specified.

The function shall be sure the dispenser has the available funds requested.

The function shall dispense the specified amount of cash.

**The spelling-check and correcting function in a word processor.**

The function shall alert the reader to a misspelling.

The function shall check whether the targeted word is in the specified (installed) dictionary.

The function shall attempt to match the typed word to the closest word in the dictionary.

The function should offer suggestions for corrections of misspelled words.

The function should offer to ignore a misspelling.

The function should offer to add a spelling to the dictionary.

4.6) Suggest how an engineer responsible for drawing up a system requirements specification might keep track of the relationships between functional and non-functional requirements.’

A diagram or list would be ways that would allow an engineer to keep track of the requirements as well as the connections between them. A diagram would allow visual connections and relationships between functions to be easily recognized rather than the confusion that could result from keeping everything separate in lists.

**(4.7)** Using your knowledge of how an ATM is used, develop a set of use cases that could serve as a basis for understanding the requirements for an ATM system.

**Withdraw funds:**By swiping their card through the card-reader, the user then inputs a PIN (personal identification number) to verify access to the account. The records of the bank who holds the account are checked, and the account is then confirmed. The user may then choose from a list of options on the ATM screen. The user can input an amount (or may have the option to choose from a predetermined amount) to be withdrawn from their bank account. The system confirms that the user has enough money in their account before dispensing the specified amount of cash. After the cash is dispensed, the user will confirm that the transaction is complete by pressing the button on the screen. They are then logged out of their account and the ATM is prepared for the next user.

**Transfer funds:** After confirming access to their account by the process aforementioned, the user is again presented with a list of options on the screen. By choosing the button to transfer money, the user can choose to move money between their own accounts, for example, transferring money from their savings account into a checking account, or into the account of another user provided they have the account number to transfer the money into. The user must then confirm the amount and the destination, the money is transferred and the transaction is complete as the user logs out of the account and the ATM is prepared for the next user.

**Check balance:**By again confirming access to their account, the user is presented with a list of options. The user may then choose the option for checking their account balance on the screen. The ATM accesses the bank records for the specified account and displays it on the screen for the user to see. The user may then choose to press “End” therefore logging out of their account on the ATM.