Dear Mr. Watchorn,

I'm writing to provide a comprehensive summary of the recently completed MATLAB final project - an ATM State Machine. In this email, you will find an executive summary, a discussion of decisions made, outcomes, and conclusions.

**Executive Summary**

The project's main task was to create an ATM State Machine using MATLAB. The script successfully sets up a simple bank account system, allowing the user to deposit, withdraw, and check their balance. It also tracks the total session duration from initialization to shutdown.

**Discussion**

The design decisions are centered around documentation, modularity, and style. I opted for clear and concise comments throughout the script to facilitate better understanding of the code's purpose and function. The 'switch' construct is used to create different states of the machine: 'Initialize', 'Balance Check', 'Withdraw', 'Deposit', and 'Shutdown'. This approach has not only made the script more readable but also increased its modularity, facilitating future expansions or modifications.

The data chosen for this script was intentionally kept simple, focusing on a basic bank account balance and user-inputted deposit and withdrawal amounts. A choice was made to keep the focus on the state machine and its operation.

The development of this script took a considerable amount of time, about 22 hours, but most of this was spent doing other work or sleeping. In actuality it took about 4 hours to complete this script, as ensuring the correct functioning of each state and overall flow of the state machine was critical.

**Outcomes**

The ATM state machine script operates efficiently. It starts by initializing the account balance and then enters a main loop, where it checks the balance, allows the user to make a deposit or withdrawal, and finally shuts down the system when instructed by the user.

For each state, the machine performs as follows:

* 'Initialize': Sets the state to 'Balance Check'
* 'Balance Check': Checks the account balance and asks the user for the next action.
* 'Withdraw': Allows a withdrawal if the balance is sufficient, then returns to 'Balance Check'
* 'Deposit': Accepts the deposit amount, then goes back to 'Balance Check'
* 'Shutdown': Displays the total session time and ends the operation.

**Conclusions**

The ATM State Machine project was successful. The MATLAB script effectively manages the bank account system, carrying out user instructions, and managing the state transitions properly. The use of a state machine in this context displayed its strength in managing complex, conditional tasks.

The timer functionality also effectively calculates the total session duration, providing additional functionality to the script.

Feel free to reach out if you have any questions or need further clarification. Thank you for your attention to this report.

Best regards,

Michael Dekoski