Individual Lab

**Money Module**

Karen’s business is taking off. Her bank account looks good but at a glance, she can’t easily see which transactions are related to her business or her personal expenses.

She finds that at the end of the week, she’s using excel to record details from her bank account and credit card to figure it out. Karen would like to record a description of the transaction indicating whether the transaction was income or expense and more details of what the transaction was for.

Karen usually pays for supplies using her credit card. Karen’s clients usually pay her in cash or by e-transfer.

Once Karen’s business grows to $30,000 in sales, Karen will be required to collect and pay HST. For this reason, Karen would like to know how much she’s paid and collected in HST.

Karen would like a more robust system than Excel to manage these details.

Your task is to read the User Story below and create a class diagram and sequence diagrams to support the scenario.

User Story

As the owner of this business, I would like to record my financial transactions so that I can quickly see how much money I’ve made and what I owe the government in HST. For my purposes, my expenses subtracted from my income.

Acceptance Criteria:

1. Must be able to query transactions by date and provide a total profit and total HST.
2. Differentiate between expenses and sales – provide a running total of sales – expenses.
3. Calculate the HST owed to the government by subtracting HST paid on expenses from HST collected on income.

Use Case Descriptions

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| --- | --- | --- | --- |
| Use Case Name | Create an income transaction | | |
| Triggering Event | Money coming into the business. | | |
| Brief Description | Allows the Owner to record an income transaction. | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Income transactions are saved and added to financial totals. | | |
| Flow of activities | Actor | | System |
|  |  | Requests to add a new income transaction | Displays a calendar.  Prompts for description, transaction amount and HST amount. |
|  |  | Select the transaction Date.  Enter the transaction description.  Enter the transaction amount.  Enter HST amount. | Verify that date is selected.  Verifies that description and amount have been entered.  Calculates HST.  Displays financial transaction.  Prompts to save |
|  |  | Request to save | Saves the transaction and returns to the main menu |
| Exception Conditions | * Owner chooses to cancel adding the transaction | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name | Create an expense transaction | | |
| Triggering Event | Money leaving the business. | | |
| Brief Description | Allows the Owner to record an expense transaction. | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Expense transactions are saved and added to financial totals. | | |
| Flow of activities | Actor | | System |
|  | 1. | Requests to add a new expense transaction | Displays a calendar.  Prompts for description, transaction amount and HST amount. Displays a list of expense types and prompts for selection |
|  | 2. | Select the transaction Date.  Enter the transaction description.  Enter the transaction amount.  Select the expense type. | Verify that date is selected.  Verifies that description and amount have been entered.  Calculates HST  Displays financial transaction.  Prompts to save |
|  | 3. | Request to save | Saves the transaction and returns to the main menu. |
| Exception Conditions | * Owner chooses to cancel adding the transaction | | |

|  |  |  |  |
| --- | --- | --- | --- |
| Use Case Name | Query Financial Transaction | | |
| Triggering Event | Owner requires a list of transactions for a date period including Total Income, Total Expenses, Total Profit, Total HST collected, Total HST Paid, HST Owed | | |
| Brief Description | Allows the Owner to retrieve financial totals for a specified date range | | |
| Actors | Owner | | |
| Related Use Cases |  | | |
| Preconditions | Owner has opened the Main Menu. | | |
| Post Conditions | Financial transactions are retrieved, totaled and displayed | | |
| Flow of activities | Actor | | System |
|  |  | Requests to query financial transactions | Displays a calendar |
|  |  | Selects date range. | Verifies that dates are selected.  Retrieves transactions in the specified date range.  Calculates and displays total sales, total expenses, Profit, total HST Owed. Prompts to exit. |
|  |  | Request to exit | returns to the main menu |
| Exception Conditions |  | | |

Your tasks:

1. Create a class diagram to support the above case study and Systems Use Case Specifications.
2. Create an object level sequence diagram, detailing the Create Income Transaction systems use case specification.
3. Create an object level sequence diagram, detailing the Create Expense Transaction systems use case specification.
4. Create an object level sequence diagram, detailing the Query Financial Transaction system use case specification.