Concordia University

SOEN-6481 SOFTWARE SYSTEMS REQUIREMENTS SPECIFICATION(FALL 2019)

TICKET VENDING MACHINE

DELIVERABLE 2 (D2)

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1.1 Problem 5

1.1.1 User Story : Customer Login

Title: Customer Login	Priority:	Estimate:
ID: TVM-01	High	3 (story points)

As a commuter
I want to login to the TVM system
So that I can view my ticket plans

Constraints:

Usability-1: Login credential text boxes should be prominently visible on the screen
Usability-2: As the user submits the login credentials, system should respond within 5 seconds

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities

Acceptance criteria:

Given a commuter interacting with TVM to view ticket plans
When user select the button to login
Then system displays to select a language, and response time is less than 5 seconds

Usability-1-Test 1: User should find the fields easily to enter credentials

Usability-2-Test 1: User interacts with TVM with speed and ease-of-use. Response time should be acceptable (less than 5 seconds).

Accessibility-1-Test 1: A user can hear the voice asking for TVM login

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Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen, Negative user

Personas: George Bell, Susan Kubrock, Sadie Taylor, Jean Davidson

1.1.2   User Story : Select Language

Title: Select Language	Priority:	Estimate:
ID: TVM-02	Medium	2 (story points)

As a commuter
I want to select language
So that I can interact with TVM system

Constraints:

Usability-1: User should be given list of language options to choose
Usability-2: As the user selects the option, system should respond within 5 seconds

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities by using a screen reader for vision impaired users or people who cannot read/write.

Maintainability-1:   More number of languages can be added to the list.

Acceptance criteria:

Given a commuter interacting with TVM to select known language
When selects the known language
Then system displays the next information in selected language, and response time is less than 5 seconds

Usability-1-Test 1: User should be able to easily select the option in the list
Usability-2-Test 1: User interacts with TVM with speed and ease-of-use. Response time should be acceptable (less than 5 seconds).

Accessibility-1-Test 1: A user can hear the voice asking for language selection

Maintainability-1-Test 1: A user should get the newly added language options to choose

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Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: George Bell, Susan Kubrock, Sadie Taylor

1.1.3   User Story : Select Ticket Type

Title: Select Ticket Type	Priority:	Estimate:
ID: TVM-03	High	3 (story points)

As a commuter
I want to select ticket types (Rechargeable card or Non-rechargeable ticket)
So that I can either reload Non-rechargeable card or buy a Rechargeable ticket

Constraints:

Usability-1: All ticket types should be displayed on the screen at the same time

Usability-2: From the time user enters the system, it takes less than or equal to 5 seconds on average for the system to display the ticket types for the user to select among them.

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities by using a screen reader for vision impaired users or people who cannot read/write.

Maintainability-1: More ticket types should be added to the system later, without effecting current design.

Acceptance criteria:

Given a commuter interacting with TVM to select ticket types
When user enter the system to buy a ticket or view ticket plans
Then system displays ticket types for user to select among them

Usability-1-Test 1: A user enters the system and all ticket types will be displayed on the screen for the user to select among them
Usability-2-Test 1: A user enters the system and the ticket types will be displayed in less than or equal to 5 seconds for the user to select among them

Accessibility-1-Test 1: A user can hear the voice for each text displayed on the output device.

Maintainability-1-Test 1: A system administrator adds a new ticket type without effecting the current functionality of the system

Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: Personas: George Bell, Susan Kubrock, Sadie Taylor

1.1.4   User Story : View Ticket Plans for Rechargeable card

Title: View Ticket Plans for Rechargeable card	Priority:	Estimate:
ID: TVM-04	High	5 (story points)

As a commuter
I want to view ticket plans on selecting rechargeable card with details and fares
So that I can decide what plan is suitable for me to buy

Constraints:

Usability-1: All the plans should be displayed on the screen so that user can compare them together.
Usability-2: From the time user selects to view ticket plans, it takes less than or equal to 5 seconds on average for the system to display the result to that user.
Usability-3: Information displayed on the screen should be sorted ascending according to fare.

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities by using a screen reader for vision impaired users or people who cannot read/write.

Maintainability-1: More plans should be added to the system later, without effecting current design

Acceptance criteria:

Given a commuter interacting with TVM to view ticket plans
When user select to display ticket plans
Then system will display different plans of ticket along with their details and fares

Usability-1-Test 1: A user select to view ticket plans and all plans will be displayed on the screen
Usability-2-Test 1: A user select to view ticket plans and the result will be displayed in less than or equal to 5 seconds
Usability-3-Test 1: A user select to view ticket plans and all plans will be displayed on the screen on ascending order according to ticket fares

Accessibility-1-Test 1: A user can hear the voice for each text displayed on the output device.

Maintainability-1-Test 1: A system administrator adds a new ticket plan without effecting the current functionality of the system

Relevant Persona(s) / User(s):
Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: Personas: George Bell, Susan Kubrock

1.1.5   User Story : View Ticket Plans for Non-Rechargeable card

Title: View Ticket Plans for Non-Rechargeable card ID: TVM-05	Priority: High	Estimate: 5 (story points)

As a commuter
I want to view ticket plans on selecting non-rechargeable ticket with details and fares
So that I can decide what plan is suitable for me to buy

Constraints:

Usability-1: All the plans should be displayed on the screen so that user can compare them together.
Usability-2: From the time user selects to view ticket plans, it takes less than or equal to 5 seconds on average for the system to display the result to that user.
Usability-3: Information displayed on the screen should be sorted ascending according to fare.

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities by using a screen reader for vision impaired users or people who cannot read/write.

Maintainability-1: More plans should be added to the system later, without effecting current design

Acceptance criteria:

Given a commuter interacting with TVM to view ticket plans
When user select to display ticket plans
Then system will display different plans of ticket along with their details and fares

Usability-1-Test 1: A user select to view ticket plans and all plans will be displayed on the screen
Usability-2-Test 1: A user select to view ticket plans and the result will be displayed in less than or equal to 5 seconds
Usability-3-Test 1: A user select to view ticket plans and all plans will be displayed on the screen on ascending order according to ticket fares

Accessibility-1-Test 1: A user can hear the voice for each text displayed on the output device.

Maintainability-1-Test 1: A system administrator adds a new ticket plan without effecting the current functionality of the system

Relevant Persona(s) / User(s):
Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: Personas: George Bell, Susan Kubrock, Gabriel, Mariam

1.1.6   User Story : Select Payment Method

Title: Select Payment Method	Priority:	Estimate:
ID: TVM-06	High	5 (story points)

As a commuter
I want to have the option to pay either using cash or card

So that I can move ahead to proceed my transaction

Constraints:

Usability-1: Both methods should be displayed on the screen so that user can choose according to his convenience.
Usability-2: The system should display the step-wise procedure for the payment method chosen by the user in less than or equal to 5 seconds on average.

Security-1: The payment should be secured and ask for authorization each time to make sure user's card details are secured and not misused, in case of card payment.

Accessibility-1: TVM should be accessible by users with different backgrounds and abilities by using a screen reader for vision impaired users or people who cannot read/write.

Maintainability-1: More number of methods can be added for the payment

Acceptance criteria:

Given a commuter interacting with TVM to pay for his/her ticket
When user select the button to pay for ticket
Then system displays different payment methods it accepts, and user should be able to pay using any one of them.

Usability-1-Test 1: A user enters the system and both payment methods will be displayed on the screen for the user to select among them
Usability-2-Test 1: A user select the payment method and the result will be displayed in less than or equal to 5 seconds
Security-1-Test 1: A user select the card payment method and the system will secure it by asking for authorization each time, making sure the user's card details are secured and not misused

Accessibility-1-Test 1: A user can hear the voice for each text displayed on the output device.

Maintainability-1-Test 1: A user should newly added methods to choose

Relevant Persona(s) / User(s):
Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: George Bell, Susan Kubrock, Mariam, Gabriel

1.1.7 User Story : Make Cash Payment

Title: Make Cash Payment	Priority:	Estimate:
ID: TVM-07	High	5 (story points)

As a commuter
I want to be able to make a payment using cash
So that I can purchase ticket and get confirmation receipt

Constraints:

Usability-1: System should display information on type of cash denomination accepted and how to enter cash.
Usability-2: The system should validate the denominations and cash user entered in less than or equal to 5 seconds on average.

Usability-3: The system should dispense the cash back if ticket purchase fails.

Security-1: The payment should be secured and validation of currency and denomincations of the cash received should be done.

Accessibility-1: User can hear the step by step instructions on how to make a cash payment.

Maintainability-1: System must accept different type of denominations and currency to make payment

Acceptance criteria:

Given a commuter interacting with TVM to pay for his/her ticket
When user select the button to make cash payment

Then system displays instruction on how to make a cash payment, validate the currency and denomination and process the cash payment.

Usability-1-Test 1: A user enters cash of correct currency and denomination using cash acceptor. System also displays information on how to make cash payment.
Usability-2-Test 1: A user insert cash and the system validates the currency and denominations in less than or equal to 5 seconds
Usability-3-Test 1: System dispenses the money back to user if the transaction fails.
Security-1-Test 1: System validates currency deposited by the user using cash acceptor. System also identifies the fake currency.

Accessibility-1-Test 1: A user can hear the instructions on how to make a cash payment.

Maintainability-1-Test 1: A system administrator adds functionality to process different types of denominations and currency.

Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen, Negative user

Personas: George Bell, Susan Kubrock, Sadie Taylor, Jean Davidson

1.1.8   User Story : Make Card Payment

Title: Make Card Payment	Priority:	Estimate:
ID: TVM-08	High	5 (story points)

As a commuter
I want to be able to make a payment using card
So that I can purchase ticket and get confirmation receipt

Constraints:

Usability-1: System should display information on each step of a card payment.
Usability-2: The system should authorize and process the payment in less than or equal to 5 seconds on average.

Security-1: The payment should be secured and ask for authorization each time to make sure user's card details are secured and not misused, in case of card payment.

Accessibility-1: User can hear the step by step instructions on how to make a card payment.

Maintainability-1: System must accept different type of cards to make payment

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Acceptance criteria:

Given a commuter interacting with TVM to pay for his/her ticket
When user select the button to make card payment
Then system displays instruction on how to make a card payment, authenticate and process the card payment.

Usability-1-Test 1: A user enters card and pin number and system should authenticate and process the payment and each steps information should be shown on the TVM.
Usability-2-Test 1: A user insert card and enter pin and the system authentication the payment in less than or equal to 5 seconds
Security-1-Test 1: A user insert the card and the system will security read the card details and ask for pin to authorize. Card information should be processed by system securely using encryption.

Accessibility-1-Test 1: A user can hear the instructions on how to make a card payment.

Maintainability-1-Test 1: A system administrator adds functionality to process different types of cards.

Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen, Negative user

Personas: George Bell, Susan Kubrock, Sadie Taylor, Jean Davidson

1.1.9 User Story : Cancel Seleted Plan

Title: Cancel Seleted Plan	Priority:	Estimate:
ID: TVM-09	High	5 (story points)

As a commuter
I want to
So that I can

Constraints:

Usability-1:
Usability-2:

Usability-3:

Security-1:

Accessibility-1:

Maintainability-1:

Acceptance criteria:

Given
When
Then

Usability-1-Test 1:
Usability-2-Test 1:
Usability-3-Test 1:
Security-1-Test 1:

Accessibility-1-Test 1:

Maintainability-1-Test 1:

1.1.10   User Story : Print Payment Receipt

Title: Print Payment Receipt	Priority:	Estimate:
ID: TVM-10	High	5 (story points)

As a commuter
I want to
So that I can

Constraints:

Usability-1:
Usability-2:

Usability-3:

Security-1:

Accessibility-1:

Maintainability-1:

Acceptance criteria:

Given
When

Then

Usability-1-Test 1:
Usability-2-Test 1:
Usability-3-Test 1:
Security-1-Test 1:

Accessibility-1-Test 1:

Maintainability-1-Test 1:

Relevant Persona(s) / User(s):
Unregistered Commuter, Registered Commuter includes: Regular User, Student, Senior Citizen, Negative user

Personas: George Bell, Susan Kubrock, Sadie Taylor, Jean Davidson

1.1.11   User Story : Check for payment card authorization

Title: Check for payment card authorization	Priority:	Estimate:
ID: TVM-11	High	8 (story points)

As a metro security officer
I want debit or credit cards used by commuters for payment should be authorized
So that payments are safe

Constraints:

Security-1: Card inserted to the TVM by the commuter should be checked for validity with the bank
Security-2: Security Pin entered by the commuter should be checked whether it is valid with the bank database

Usability-1: From the time user enters security pin, it takes less than or equal to 5 seconds on average for the system to display the result to that user.

Maintainability-1: More security constraints can be added

Acceptance criteria:

Given that commuter inserts bank card
When user enters amount and security pin
Then system will check bank card validity and displays result to the user

Security-1-Test 1: User can see the message of payment authorization from the bank
Security-2-Test 1: If the pin is correct the payment approval result will be displayed in less than or equal to 5 seconds

Usability-1-Test 1: The payment approval should be within 10 seconds soon after the user enter the pin

Maintainability-1-Test 1: A system administrator adds a new card payment constraint without affecting the current functionality of the system

Relevant Persona(s) / User(s):
Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: George Bell, Susan Kubrock, Paul Beck, Jean Davidson

1.1.12   User Story : Secure admin login

Title: Secure admin login	Priority:	Estimate:
ID: TVM-12	High	8 (story points)

As a metro security admin
I want secure login to the TVM software but not from the TVM used by the commuters
So that admin rights are secured

Constraints:

Security-1: The URL used for the admin login will be different
Security-2: The admin login will be with security questions before login

Maintainability-1: More security constraints can be added

Acceptance criteria:

Given that Admin visits the admin login URL
When admin answers all the security questions
Then admin will be allowed to login to the TVM admin system

Security-1-Test 1: Admin login should not be found or linked with in any of the commuters TVM
Security-2-Test 1: If the security questions are answered right the admin login page will be displayed in less than or equal to 5 seconds

Maintainability-1-Test 1: Any constraints added to the admin login should be reflected during admin login

Relevant Persona(s) / User(s):
Registered Commuter includes: Regular User, Student, Senior Citizen

Personas: George Bell, Susan Kubrock, Paul Beck, Jean Davidson

1.2 Problem 6

1.2.1 Traceability Matrix