

# **Vendomatic Project**

## **Use Cases**

*Version 1.2*

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## Revision History

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## UC-01: Login to Web Application

### Brief Description

The user logs into the Vendomatic web application on the web platform and gains access to relevant features and functionalities based on their role.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li><li>• Operators</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

#### *Operators*

Personnel responsible for managing, monitoring, and maintaining vending machines on behalf of vending machine owners.

### Preconditions

- The user has registered for a Vendomatic web account.

### Basic Flow of Events

1. The user accesses the Vendomatic software application on the web platform.
2. The user inputs login credentials in terms of username and password.
3. The system validates user credentials.
4. Upon successful authentication, the user gains access to the relevant features and functionalities based on their role as a vending machine owner or operator.

### Alternative Flows

#### *Invalid Credentials*

If in step-3 of the basic flow the system detects invalid credentials, then;

1. The system notifies the user of incorrect username or password and prompts them to retry.
2. The use case resumes at step-2.

#### *First Login*

If in step-4 of the basic flow the system detects a first time login, then;

1. The system prompts the user to update the password.
2. The user inputs the new password.
3. The system saves the new password.
4. The system redirects the user to the Login section.



## Extensions

### *Recover Credentials*

If step-2 of the basic flow the user forgot the credentials, then;

1. The user clicks on the "Password Reset" button.
2. System asks for an email verification.
3. User inputs the registered email address.
4. System sends an email to the user's mail which includes a password reset link.
5. User clicks on this link.
6. System resets the user password and prompts to provide a new password.
7. User inputs a new password.
8. The use case resumes at step-2 of the basic flow.

## Key Scenarios

- A vending machine owner logs in to manage their vending machines.
- An operator logs in to monitor and perform maintenance tasks on vending machines.

## Post-Conditions

### *Successful Completion*

The user is logged into the Vendomatic Web Application and has access to the relevant features and functionalities based on their role.

### *Failure Condition*

The user stays logged out from the Vendomatic Web Application and does not have access to the relevant features and functionalities based on their role.

## Special Requirements

- Owners are registered during the setup phase, and a single Vendomatic Software on the web platform has a single owner.
- Social logins are not supported by the Vendomatic Web Application.
- Usernames are always the email of the user.
- Passwords are at least 8 characters containing at least one letter and one number.
- All inputs are both client-side and server-side validated.

## UC-02: Manage Operators

### Brief Description

The vending machine owner uses the Vendomatic application to manage operators associated with their vending machines. They can add, edit, or remove operator accounts, assign roles and permissions. This functionality allows the vending machine owner to maintain control over their vending machine operations and ensure that only authorized personnel can access and manage their machines.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

### Preconditions

- The user has successfully logged in to the Vendomatic Web Application through UC-01.
- The user has the “Vending Machine Owner” role.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the operator management section.
3. The user clicks the Add New Operator button.
4. The user creates an operator by inputting;
  - a. Operator email,
  - b. Assigning one, more or all vending machines.
5. The user submits the information to the system.
6. The system validates the information, creates a random password and registers the operator accordingly.
7. The system sends an email to the operator.

### Alternative Flows

If in step-5 of the basic flow the system detects invalid or missing information, then;

1. The system notifies the user of the issue and prompts them to correct the information.
2. The use case resumes at step-4.

### Extensions

#### *Modify an Existing Operator*

If in step-2 of the basic flow the user needs to modify an existing account, then;

1. The user selects any existing operator to open the details section.
2. The user modifies the operator by inputting;

- a. Operator email,
  - b. Assigning one, more or all vending machines.
3. The user submits the changes to the system.
4. The system validates the changes.
5. The system sends an email to the operator indicating the changes.

#### *Delete an Existing Operator*

If in step-2 of the basic flow the user needs to delete an existing account, then;

1. The user selects any existing operator to open the details section.
2. The user clicks the Delete Operator button.
3. The system prompts a confirmation dialog.
4. The user confirms the operation.
5. The system deletes the operator.

#### **Key Scenarios**

- A vending machine owner creates a new or modifies an existing operator.

#### **Post-Conditions**

##### *Successful Completion*

- A new operator has been created and associated with vending machines, or an existing operator has been modified.

##### *Failure Condition*

- The operator creation or modification process is failed and an error message is prompted.

#### **Special Requirements**

- Usernames are always the email of the user.
- Passwords are at least 8 characters containing at least one letter and one number.
- All inputs are both client-side and server-side validated.
- An operator can be assigned to one or more machines.
- An operator always has the Operator role.

## UC-03: Manage Vending Machines

### Brief Description

The vending machine owner or operator registers their vending machine with essential attributes, ensuring discoverability by customers and enabling remote management and monitoring.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	• Vending Machine Owners

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

### Preconditions

- The user has successfully logged in to the Vendomatic Web Application through UC-01.
- The user has the “Vending Machine Owner” role.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the vending machine management section.
3. The user clicks the Add New Vending Machine button.
4. The user creates a vending machine by inputting;
  - a. Machine alias,
  - b. Location coordinates,
  - c. Machine type,
  - d. Total isle number,
  - e. Status.
5. The system validates the information and creates a new vending machine.

### Alternative Flows

If in step-5 of the basic flow the system detects invalid or missing information, then;

1. The system notifies the user of the issue and prompts them to correct the information.
2. The use case resumes at step-4.

### Extensions

#### *Modify an Existing Vending Machine*

If in step-2 of the basic flow the user needs to modify an existing vending machine, then;

1. The user selects any existing vending machine to open the details section.
2. The user modifies the vending machine by inputting;
  - a. Machine alias,
  - b. Location coordinates,

- c. Machine type,
- d. Total isle number
- e. Status.
3. The user submits the changes to the system.
4. The system validates the changes.

#### *Delete an Existing Vending Machine*

If in step-2 of the basic flow the user needs to delete an existing vending machine, then;

1. The user selects any existing vending machine to open the details section.
2. The user clicks the Delete Vending Machine button.
3. The system prompts a confirmation dialog.
4. The user confirms the operation.
5. The system deletes the vending machine.

#### **Key Scenarios**

- A vending machine owner creates a new or modifies an existing vending machine.

#### **Post-Conditions**

##### *Successful Completion*

- A new vending machine has been created, or an existing vending machine has been modified.

##### *Failure Condition*

- The vending machine creation or modification process is failed and an error message is prompted.

#### **Special Requirements**

- Machine aliases are unique across the system.
- The location is in WGS84 datum EPSG 3857 format compliant with the Google Map API.
- Machine type can be one of Beverage, Snack, or Beverage/Snack.
- Status can be one of Healthy, Maintenance, or Faulty.
- All inputs are both client-side and server-side validated.

## UC-04: Manage Products

The vending machine owner/operator remotely manages and monitors products in real-time using the Vendomatic Web Application.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li><li>• Operators</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

#### *Operators*

Personnel responsible for managing, monitoring, and maintaining vending machines on behalf of vending machine owners.

### Preconditions

- The user has access to the Vendomatic Web Application through UC-01.
- The user has either one of the Vending Machine Owner or Operator roles.
- The corresponding machine is already assigned to the Operator through UC-02.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the product management section.
3. The user selects any product to open the details.
4. The user clicks the Add Product button.
5. The user adds a new product by inputting;
  - a. Type,
  - b. Name,
  - c. Quantity,
  - d. Unit price.
6. The system validates the information and creates a new product.

### Alternative Flows

If in step-6 of the basic flow the system detects invalid or missing information, then;

1. The system notifies the user of the issue and prompts them to correct the information.
2. The use case resumes at step-5.

### Extensions

#### *Modify an Existing Product*

If in step-2 of the basic flow the user needs to modify an existing product, then;

1. The user selects any existing product to open the details section.
2. The user modifies the product by inputting;
  - a. Type,
  - b. Name,
  - c. Quantity,
  - d. Unit price.
3. The user submits the changes to the system.
4. The system validates the changes.

#### *Delete an Existing Product*

If in step-2 of the basic flow the user needs to delete an existing vending machine, then;

1. The user selects any existing product to open the details section.
2. The user clicks the Delete Product button.
3. The system prompts a confirmation dialog.
4. The user confirms the operation.
5. The system deletes the product.

#### **Key Scenarios**

- A vending machine owner manages products and reorders products as needed.
- An operator checks the stock of each product in the vending machine and restocks as necessary.

#### **Post Conditions**

##### *Successful Completion*

- A new product has been created, or an existing product has been modified.

##### *Failure Condition*

- The product creation or modification process is failed and an error message is prompted.

#### **Special Requirements**

- Product names are unique across the system.
- Liquid quantities are calculated as [total liters / liters per cup].
- All inputs are both client-side and server-side validated.

## UC-05: Manage Inventory

### Brief Description

The vending machine owner/operator remotely manages and monitors inventory levels in real-time using the Vendomatic Web Application.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li><li>• Operators</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

#### *Operators*

Personnel responsible for managing, monitoring, and maintaining vending machines on behalf of vending machine owners.

### Preconditions

- The user has access to the Vendomatic Web Application through UC-01.
- The user has either one of the Vending Machine Owner or Operator roles.
- The corresponding machine is already assigned to the Operator through UC-02.
- The corresponding vending machine is created through UC-03.
- Corresponding products are created through UC-04.
- The Vendomatic adapter is installed on the vending machine which is intended to be managed remotely.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the inventory management section.
3. The user selects any vending machine to open the details.
4. The user views the stock levels of each product in the vending machine.
5. The user clicks the Add Product button.
6. The user adds a new product by inputting;
  - a. The predefined product,
  - b. Quantity,
  - c. Unit price, if different from the product unit price,
  - d. Isle number.
7. The system validates the information and adds the product.

### Alternative Flows

If in step-7 of the basic flow the system detects invalid or missing information, then;

1. The system notifies the user of the issue and prompts them to correct the information.



2. The use case resumes at step-6.

## Extensions

### *Modify an Existing Product*

If in step-2 of the basic flow the user needs to modify an existing product, then;

1. The user selects any existing vending machine to open the details section.
2. The user modifies the vending machine by inputting;
  - a. The predefined product,
  - b. Quantity,
  - c. Unit price, if different from the product unit price,
  - d. Isle number.
3. The user submits the changes to the system.
4. The system validates the changes.

### *Remove an Existing Product*

If in step-2 of the basic flow the user needs to remove an existing product, then;

1. The user selects any existing vending machine to open the details section.
2. The user clicks the Remove Product Vending Machine button.
3. The system prompts a confirmation dialog.
4. The user confirms the operation.
5. The system removes the product from the vending machine.

## Key Scenarios

- A vending machine owner monitors inventory levels and reorders products as needed.
- An operator checks the stock of each product in the vending machine and restocks as necessary.

## Postconditions

### *Successful Completion*

- A product has been added to, modified, or removed from an existing vending machine.

### *Failure Condition*

- The product addition, modification or removal process is failed and an error message is prompted.

## Special Requirements

- The Isle Number must be in range of the vending machine's Total Isle Count.
- The product to be added or modified must have a positive stock amount.
- All inputs are both client-side and server-side validated.

## UC-06: Access Sales Analytics

### Brief Description

The vending machine owner/operator uses the Vendomatic application to access detailed sales analytics for their vending machines.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li><li>• Operators</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic software for remote management.

#### *Operators*

Personnel responsible for managing, monitoring, and maintaining vending machines on behalf of vending machine owners.

### Preconditions

- The user has access to the Vendomatic software application.
- The user has either one of the Vending Machine Owner or Operator roles.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the sales analytics section.
3. The user views sales data by;
  - a. Product,
  - b. Vending machine,
  - c. Time period.

### Alternative Flows

(None)

### Extensions

(None)

### Key Scenarios

- A vending machine owner analyzes sales data to identify trends and make data-driven decisions.
- An operator uses sales analytics to adjust inventory levels and optimize product offerings.

## **Post-Conditions**

### *Successful Completion*

- The user has accessed sales analytics to make informed decisions for their vending machine business.

### *Failure Condition*

- There aren't any vending machines nor products defined through UC-03 and UC-04 respectively.
- Products are not assigned to any vending machine through UC-05.

## **Special Requirements**

- All purchases must be recorded just-in-time as a snapshot and dynamic pricing factors must be excluded.

## UC-07: Manage Maintenance Alerts

### Brief Description

The vending machine owner/operator receives maintenance alerts and machine diagnostics information from the Vendomatic Web Application.

<b>Scope</b>	Vendomatic Web Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	<ul style="list-style-type: none"><li>• Vending Machine Owners</li><li>• Operators</li></ul>

### Actors

#### *Vending Machine Owners*

Individuals or businesses who own one or more vending machines and use the Vendomatic Web Application for remote management.

#### *Operators*

Personnel responsible for managing, monitoring, and maintaining vending machines on behalf of vending machine owners.

### Preconditions

- The user has access to the Vendomatic software application.
- The user has either one of the Vending Machine Owner or Operator roles.
- The corresponding machine is already assigned to the Operator through UC-02.
- The corresponding vending machine is created through UC-03.
- The Vendomatic adapter is installed on the vending machine which is intended to be managed remotely.

### Basic Flow of Events

1. The user accesses the Vendomatic Web Application.
2. The user navigates to the diagnostics section.
3. The user views diagnostic details from the list.
4. The user assigns maintenance, repairs, and machine servicing as needed.

### Alternative Flows

(None)

### Extensions

#### *Assign Maintenance Task*

If in step-4 of the basic flow the user needs to assign the maintenance task, then;

1. The user clicks the Create Maintenance Task button.
2. The user creates a maintenance task by inputting;
  - a. Description,
  - b. Priority,

- c. Deadline,
  - d. Assigned to.
3. The system validates the information and creates a new maintenance task.

#### *Ignore Diagnostic Message*

If in step-4 of the basic flow the user needs to ignore the diagnostics message, then;

1. The user clicks the Ignore button.
2. The system prompts a confirmation dialog.
3. The user confirms the operation.
4. The system removes the diagnostic message.

#### **Key Scenarios**

- A vending machine owner receives an alert about a malfunctioning machine and schedules a repair.
- An operator gets a maintenance alert and performs the necessary servicing on the vending machine.

#### **Post-Conditions**

##### *Successful Completion*

- The user has accessed diagnostics information and managed them by assigning maintenance tasks to operators or ignoring them.

##### *Failure Condition*

- The user cannot view any diagnostics information, or a maintenance task cannot be assigned to an operator.

#### **Special Requirements**

- The operator must have the machine assigned to himself to conduct maintenance.
- Diagnostics information is pushed by vending machines to a diagnostics queue.
- The queued diagnostics messages are consumed by a background service on the Vendomatic Web Application.

## UC-08: Register to the Mobile Application

### Brief Description

The customer registers to the Vendomatic Mobile Application in order to access relevant features and functionalities.

<b>Scope</b>	Vendomatic Mobile Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	• Customers

### Actors

#### *Customer*

Individuals who use the Vendomatic Mobile Application to discover nearby vending machines, view product availability, and make purchases.

### Preconditions

- The user has access to the Vendomatic Mobile Application.

### Basic Flow of Events

1. The user accesses the Vendomatic Mobile Application.
2. The user clicks the Register button.
3. The user fill in the registration form by inputting;
  - a. Email,
  - b. Password,
  - c. Password confirmation.
4. The system validates and registers the user.
5. The system sends a confirmation email.
6. The system navigates back to the login screen.

### Alternative Flows

If in step-4 of the basic flow the system detects invalid information, then;

1. The system notifies the user of the issue and prompts them to correct the information.
2. The use case resumes from step-3.

### Extensions

#### *Social Registration*

If in step-3 of the basic flow the user prefers to proceed with a social identity, then;

1. The user clicks any social identity provider icon.
2. The user completes the authentication.
3. The system validates and registers the user.
4. The system sends a confirmation email.
5. The system navigates back to the login screen.

### Key Scenarios

- The user wants to register to the Vendomatic Mobile Application.

### **Post-Conditions**

#### *Successful Completion*

- The user has registers to the Vendomatic Mobile Application.

#### *Failure Condition*

- Registration failed and the user does not have access to relevant features and functionalities.

### **Special Requirements**

- The Vendomatic Mobile Application has integration with various social identity providers.
- All inputs are both client-side and server-side validated.

## UC-09: Login to Mobile Application

### Brief Description

The customer logs into the Vendomatic Mobile Application and gains access to relevant features and functionalities.

<b>Scope</b>	Vendomatic Mobile Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	• Customers

### Actors

#### *Customer*

Individuals who use the Vendomatic Mobile Application to discover nearby vending machines, view product availability, and make purchases.

### Preconditions

- The user has registered for a Vendomatic Mobile Application account.

### Basic Flow of Events

1. The user accesses the Vendomatic Mobile Application.
2. The user clicks the Login button.
3. The user inputs login credentials in terms of username and password.
4. The system validates user credentials.
5. Upon successful authentication, the user gains access to the relevant features and functionalities.

### Alternative Flows

#### *Invalid Credentials*

If in step-4 of the basic flow the system detects invalid credentials, then;

1. The system notifies the user of incorrect username or password and prompts them to retry.
2. The use case resumes at step-3.

### Extensions

#### *Recover Credentials*

If step-2 of the basic flow the user forgot the credentials, then;

1. The user clicks on the "Password Reset" button.
2. System asks for an email verification.
3. User inputs the registered email address.
4. System sends an email to the user's mail which includes a password reset link.
5. User clicks on this link.
6. System resets the user password and prompts to provide a new password.
7. User inputs a new password.
8. The use case resumes at step-2 of the basic flow.



### **Key Scenarios**

- A customer logs in to discover nearby vending machines, view product availability, and make purchases.

### **Post-Conditions**

#### *Successful Completion*

- The customer is logged into the Vendomatic Mobile Application and has access to relevant features and functionalities.

#### *Failure Condition*

- Login failed and the user cannot access relevant features and functionalities.

### **Special Requirements**

- Social logins are supported by the Vendomatic Mobile Application.
- Usernames are always the email of the user.
- Passwords are at least 8 characters containing at least one letter and one number.
- All inputs are both client-side and server-side validated.

## UC-10: Search/Filter Products and Vending Machines

### Brief Description

The customer searches for nearby vending machines, or filters vending machines using the Vendomatic Mobile Application based on various parameters.

<b>Scope</b>	Vendomatic Mobile Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	• Customers

### Actors

#### *Customer*

Individuals who use the Vendomatic Mobile Application to discover nearby vending machines, view product availability, and make purchases.

### Preconditions

- The user has the Vendomatic Mobile Application installed on their device.
- The user has granted the necessary location permissions.

### Basic Flow of Events

1. The user accesses the Vendomatic Mobile Application.
2. The user navigates to the Explore screen.
3. The user searches vending machines by filtering with;
  - a. Products,
  - b. Types,
  - c. Proximity,
  - d. Price.
4. The application filters and displays proper vending machines.

### Alternative Flows

(None)

### Extensions

#### *Search Nearby*

If in step-3 of the basic flow the user wants to discover nearby vending machines, then;

1. The user clicks the Find Nearby button.
2. The application takes user's current location.
3. The application searches for the nearby vending machines.
4. The application displays nearby vending machines based on user's location as marked on the map.

### Key Scenarios

- A customer wants to find the nearest vending machine to purchase products.

## **Post-Conditions**

### *Successful Completion*

- The user views a list of vending machines based on filters and can select one to view more information.

### *Failure Condition*

- The user cannot find any vending machines based on filters.

## **Special Requirements**

- The Find Nearby selection defaults to 500 meters perimeter.

## UC-11: Rate Products and Vending Machines

### Brief Description

The customer rates vending machines or products using the Vendomatic Mobile Application.

<b>Scope</b>	Vendomatic Mobile Application
<b>Level</b>	User Goal
<b>Primary Actors</b>	• Customers

### Actors

#### *Customer*

Individuals who use the Vendomatic Mobile Application to discover nearby vending machines, view product availability, and make purchases.

### Preconditions

- The user has the Vendomatic Mobile Application installed on their device.
- The user has registered through UC-08.
- The user is logged in to the Vendomatic Mobile Application through UC-09.

### Basic Flow of Events

1. The user accesses the Vendomatic Mobile Application.
2. The customer searches for a vending machine or selects one from the list of nearby vending machines.
3. The user views the vending machine details, including its ratings.
4. To provide a rating, the user clicks the "Rate" button.
5. The user submits the rating.
6. The application saves the rating and updates the average rating of the vending machine.

### Alternative Flows

(None)

### Extensions

#### *Rate Products*

If in step-3, the user wants to rate a product rather than the vending machine itself, then;

1. The user views the products list of the vending machine.
2. The user clicks any product to open the product detail screen.
3. To provide a rating, the user clicks the "Rate" button.
4. The user submits the rating.
5. The application saves the rating and updates the average rating of the vending machine.

### Key Scenarios

- A customer wants to see ratings of a vending machine to determine its quality before making a purchase.
- A customer wants to provide a rating after using a vending machine to share their experience with other users.

## **Post-Conditions**

### *Successful Completion*

- The user views ratings for a vending machine or product.
- The user submits a rating for a vending machine or product which later becomes visible to other users.

### *Failure Condition*

- The rating cannot be submitted.

## **Special Requirements**

- The rating is a 1-5 range represented by stars.