Learning Report – Applied System Development Life Cycle and Software Testing

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INTRODUCTION

Formal Definition: Beverage Vending machine is a vending machine which dispenses hot coffee,milk,hot water and other coffee beverages. Machine was invented in United States by Rudd-Melikan Company in 1947 debuting as the "Kwik Kafe".

My product "Beverage Vending Machine": Beverage Vending Machine dispenses the required beverage to the user on the click of button. User can choose from the available beverages displayed in the machine and then click on the button to dispense required beverage.

Beverage Vending Machines are convenient allowing users to perform quick self service and get beverage instantly just with a button click. There is also steam option in beverage vending machine so that beverage can be heated to required temperature and it can be used to froth milk which is must for creating latte for espresso beverage surface.

Beverage Vending Machine is very popular piece of furniture in offices, factories or public buildings. It not only serves as dispenser of beverages but also a spot where staff and visitors gather for a quick chat.

Beverage Vending Machine comes in 3 popular sizes namely classic, medium and compact size. Different types of beverage vending machines are single option vending machine, double option vending machine, four option vending machine, six option vending machine, table top beverage vending machine. Some of the manufactures of coffee vending machine are Nescafe, Coffee Day, Lipton and Barista.

SWOT Analysis of the product:

Strength	Weakness	Opportunities	Threats
Quick and easy service	Weak brand awareness	Huge market of offices, factories	Consumers may cut back on coffee

		and hospitals.	consumption due to health related risks.
Occupies less space	Requires Regular Maintainence	Can make use of IoT to make machine smart.	Strong competition
24/7 Service	Usage of high volt of electricity	Can be used in restaurants to popularize the brand.	Resistance from consumers as it may not replace home brewed coffee or tea.

Table 1 SWOT Analysis of the product

Requirements and Research:

AGEING OF THE PRODUCT	COST OF THE PRODUCT
Beverage Vending Machine installation took place in 1947 in United States by Rudd-Mekian Company to dispense coffee in 5 seconds. Machines used liquid coffee concentrate that needs mixing with boiling water.	$ 3000 in the 1970s in US initially when the machine was invented
In 1988, bean grinders were added to coffee vending machines which were able to provide choices like espresso and capuccino.	Rs 400000 in the early 2000s
In 2009, multifunctional beverage machines were introduced which had touch screen capabilities and multiple options of beverages to choose and some functionalities like steam to produce froth on milk which is required	Rs 10000-200000 is the current price of the Beverage Vending Machine

for latte.	

Table 2 Ageing v/s costing of the product

High level requirements:

ID	DESCRIPTION
HL_01	Shows quantity of each beverage
HL_02	Dispense beverage only when cup is placed below filter
HL_03	Shows quantity of ingredients for beverages

Table 3 High level requirements of Beverage Vending Machine

Low level requirements:

ID	DESCRIPTION
LL_01_HL01	Checking mixing quantity ratio of milk and coffee powder
LL_02_HL02	Power Supply
LL_03_HL03	Digital Display

Table 4 Low level requirements of Beverage Vending Machine

DESIGN OF THE SYSTEM

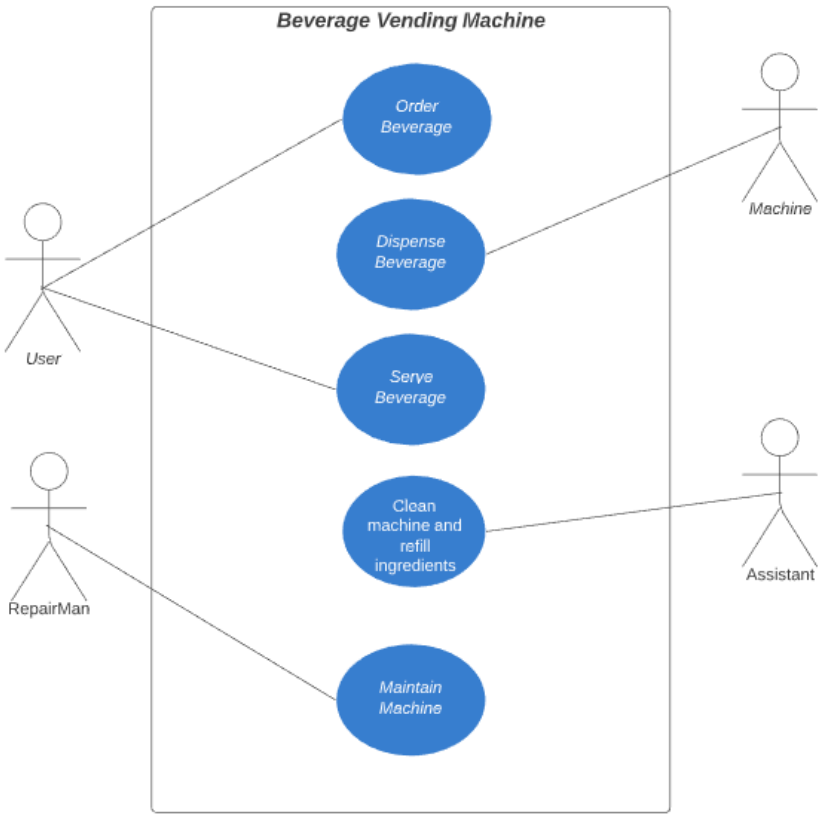

Figure 1 Use case diagram of a Beverage Vending machine

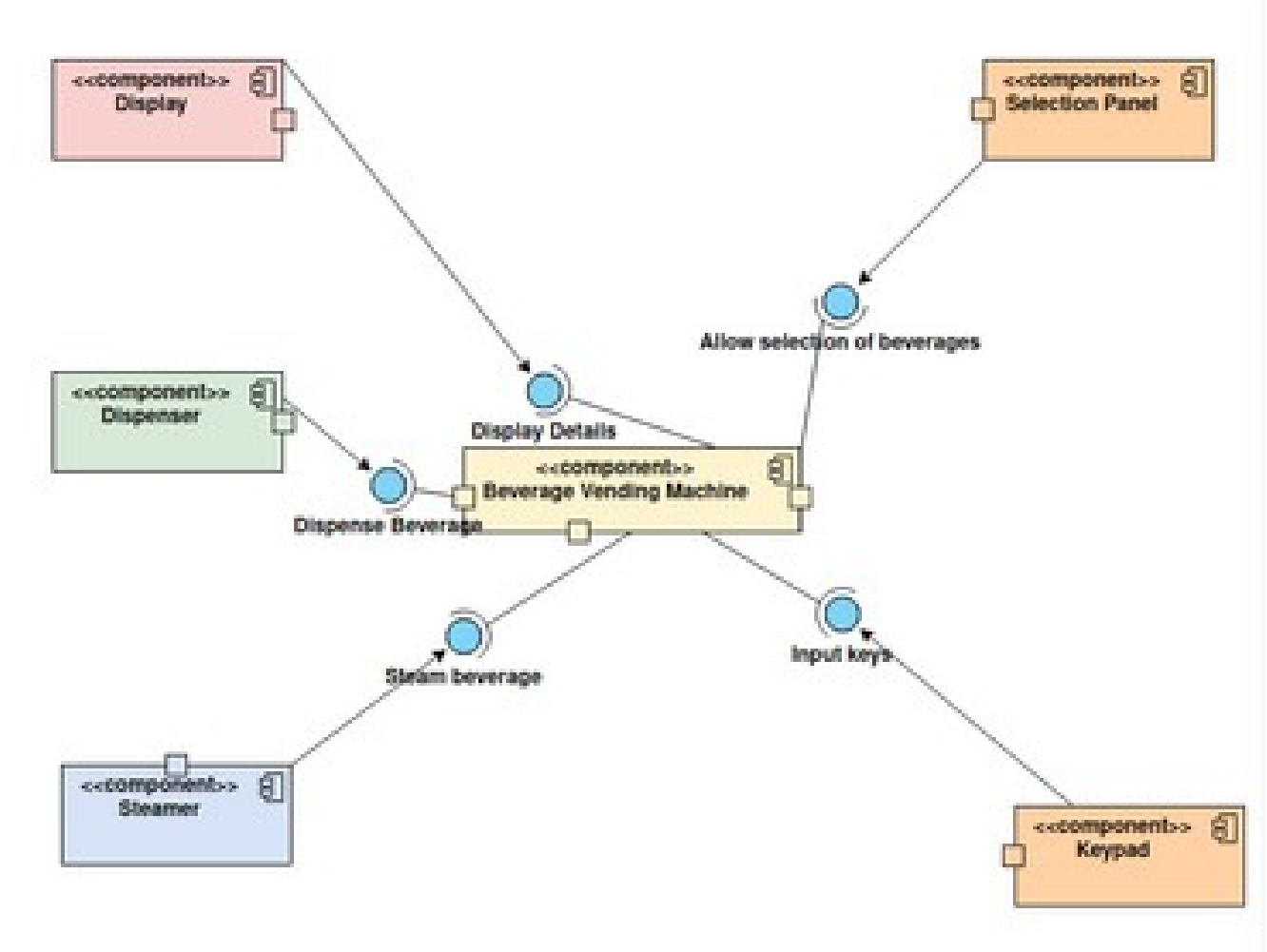
<<component>>
Display
<<component>>
Selection Panel
Allow selection of beverages
<<component>>
Dispenser
Display Details
<<component>>
Beverage Vending Machine
Dispense Beverage
Steam beverage
Input keys
<<component>>
Steamer
<<component>>
Keypad

Figure 2 Component diagram describing dispensing of beverage from the Beverage vending Machine

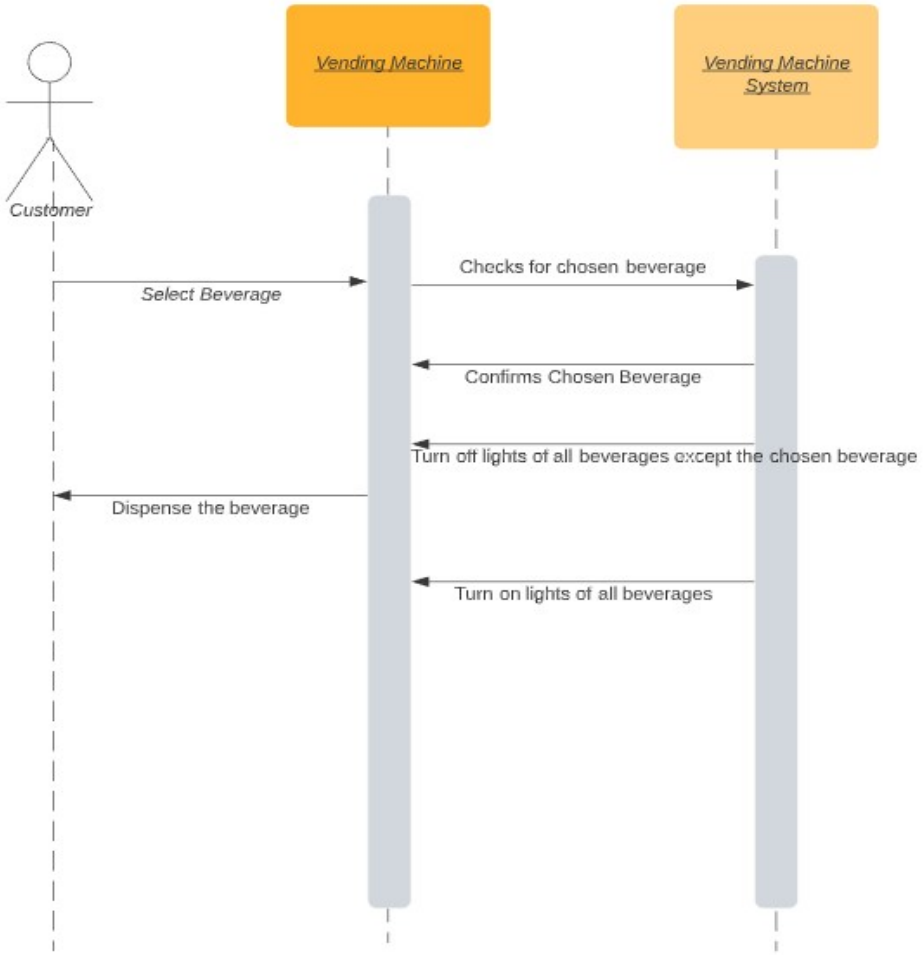

Figure 3 Sequence diagram of Beverage Vending machine

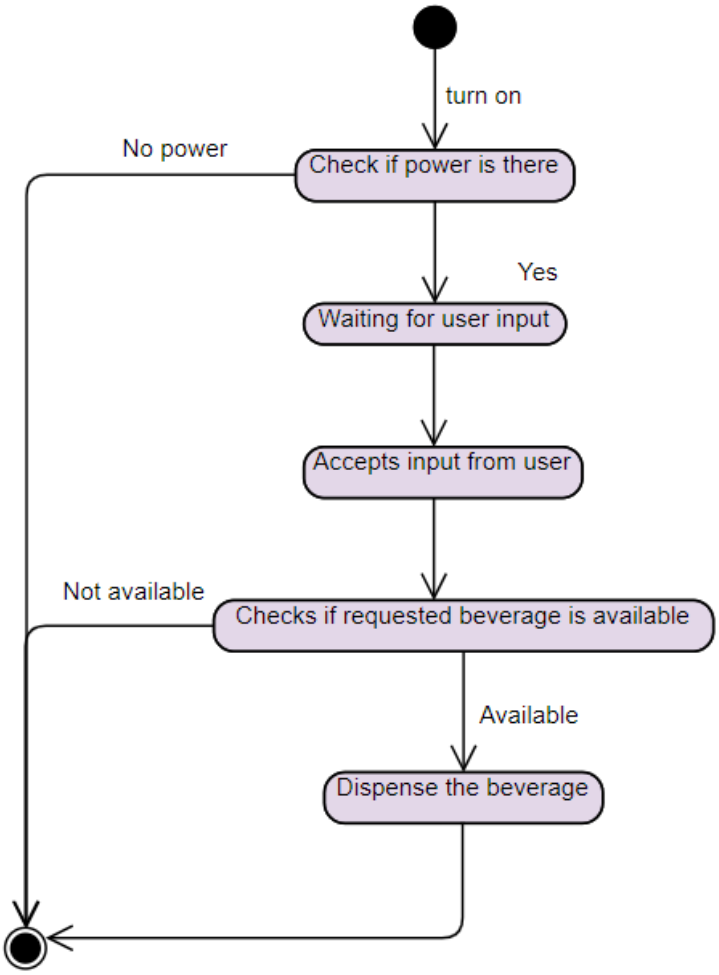

Figure 4 State diagram of an Beverage Vending Machine

TEST PLAN

Requirement based test plan:

ID	DESCRIPTION	PRE-CONDITION	EXPECTED INPUT	EXPECTED OUTPUT	ACTUAL OUTPUT
HL_01	Show quantity of beverage	Beverage should be present	None	Displays the quantity of beverage	Quantity of each beverage is displayed on screen
HL_02	Dispense beverage when cup is placed below filter	Cup should be present	Press button after placing cup	Beverage dispensed after cup is placed and button is pressed.	Beverage dispensed when cup is placed below filter after button click.
HL_03	Displays quantity of ingredients	Ingredients should be present	None	Displays quantity of each ingredient.	Displays quantity of each ingredient.
LL_01_HL_01	Checking mixing quantity of milk and coffee powder	Milk and coffee beans should be present	User clicks on button	Checks mixing quantity and dispenses coffee	Dispenses coffee after checking mixing quantity,
LL_02_HL_02	Power supply	Machine should be connected to power socket	Click on Power on button	Device switches on if power supply is there or it remains	Machine switches on when power supply is there or

				switched off	remains off.
LL_03_HL_03	Digital Display	Display should be working on machine	None	Displays details like time, date, quantity of beverages and ingredient.	Displays correct details.

Table 5 Test plan of the ATM

Scenario based test plan:

1) When a user clicks multiple buttons within 1 second.

2) When a user clicks on button even though beverage is empty.

Boundary based test plan:

1) When the user tries to get beverage without glass below filter

2) When a user tries to get beverage more than available quantity

References

1. https://en.wikipedia.org/wiki/Coffee_vending_machine

2. https://www.slideshare.net/minie747/marketing-ppt-x

3. https://wearedolcegusto.wordpress.com/2012/09/13/swot-analysis/

ACTIVITY 2: GROUP ACTIVITIES

1. BANKING SYSTEM FAILURES AND RECALLS

It is believed that banks are safest place to protect our finances, it is not the case always. Some errors in banking systems can have tremendous impact on customers as well as bank which can lead to huge losses and cause inconvenience to customers. Here are some of the banking process failures which have caused doubt in reliability of respected bank organizations:

1. Technical Faults

The Uk's Royal Bank of Scotland had updated their software batch CA-7 scheduling process which caused inability to process payments for customers. Customers were charged for late payments and customer in mexican hospital was denied medical suport.It costed bank whooping 175 million euros

2. TimeZone Differences

On 26th June 1974, Hersetatt German bank was seized due to glitch in their software which caused inability to receive money between countries due to timezone differences.

3. Ethical Failure

The Cooperative bank which is a commercial bank described as "a hurricane of negative publicity" in 2013 following the news that there was an alarming shortfall between the bank’s load balance sheet and its actual sale value if ever forced to sell assets.

4. Global Financial Crisis

The financial crash of 2007/2008 is largely considered as the worst banking failure since the Great Depression of the 1930s. The crisis was largely caused as a result of insufficient process aims. Two banks that underwent some of the greatest losses as a result of and within the 2008 global banking crisis included Washington Mutual (WaMu) and IndyMac Bancorp.

5. Debit card Recalls

More than 32 lakh debit cards of customers have been blocked or recalled by banks to prevent them from falling prey to any financial fraud after a major security

breach at a payment services provider that manages ATM network of a private sector bank. This happened in india in 2016.

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2. https://www.tribuneindia.com/news/archive/business/banks-recall-over-32-lakh-debit-cards-due-to-security-breach-312331