Learning Report – Applied System Development Life Cycle and Software Testing

L&T Technology Services

GLOBAL ENGINEERING ACADEMY

Genesis

Details

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Table of Contents

ACTIVITY 1

Topic:

Cookies vending Machine

Introduction:

A cookie vending machine is an automated machine which disposes packets of different types of cookies to the consumers when the payment is done successfully through cards, wallets and UPI. This vending machine can give service 24*7 without any additional manpower required other than refilling and maintenance.

Research – Aging and Costing:

- The first recorded example of the vending machine came from Greek mathematician Hero of Alexandria, who invented a device that dispensed holy water inside Egyptian temples.
- Other early examples included small brass machines that dispensed tobacco, found in taverns in England around 1615. In 1822, English publisher and bookshop owner Richard Carlile built a newspaper dispensing machine that allowed patrons to purchase banned works. The first fully automatic vending machine, which dispensed stamps, appeared in 1867.
- During the early 1880s, the first commercial coin-operated vending machines were introduced in London, England.
- The first beverage vending machine was in Paris, France, and allowed people to buy beer, wine, and liquor. In the early 1920s, vending machines started dispensing sodas into cups.
- The industry took a big jump around 2006 when credit card scanners became common on vending machines.
- After 2006 specialized vending machines like cookies and snacks vending machine became popular.

Costing: The average cost of cookies vending machine is 75000rs to 100000rs.

Product Features:

1. A wide range of Products available for selection.
2. A QR code for scanning and doing the payment.
3. Breakage sensing alarm
4. Cookie label and price is user settable
5. Toughened glass
6. Credit and Debit Card acceptance
7. LED Touch screen panel
8. Bill printer
9. Mobile application synchronization
10. Fast Product Refilling
11. Powder coated metal cabinet with tamper proof secure locks

Specifications:

Dimensions: H * D * W = 2000* 1000 * 800 (in mm)
Weight: 250Kg
Electrical Supply: 230V,50Hz ,0.15A
Styling: Metal Casing with Glass Back
Display: LED
Vending Mechanism achieved using 24V DC Motor.

SWOT Analysis:

STRENGTH	WEAKNESS	OPPORTUNITY	THREATS
The Vending Machine can be operated anywhere where there is 230V AC supply	The initial set-up cost is high	As there is Mobile app integration it can be operated even remotely.	As it runs on AC power so in case of power failure operation is disturbed
The time taken to complete one	There can be problems due		There is a possibility of

transaction is less	to Power Failure		mechanical damage to the machine.
The Manpower is required for very less time which reduces the overall cost.			
The transactions done can be viewed through the Mobile Application as Mobile app integration is there			
The machine can run whole day with reduced cost			

High Level Requirements:

ID	Description
HL_01	Different types of Cookies.
HL_02	Displaying the Total available Cookies.
HL_03	Different dispensing methods for different Cookies.
HL_04	Mobile application integration with the Machine.

Table: High Level Requirements
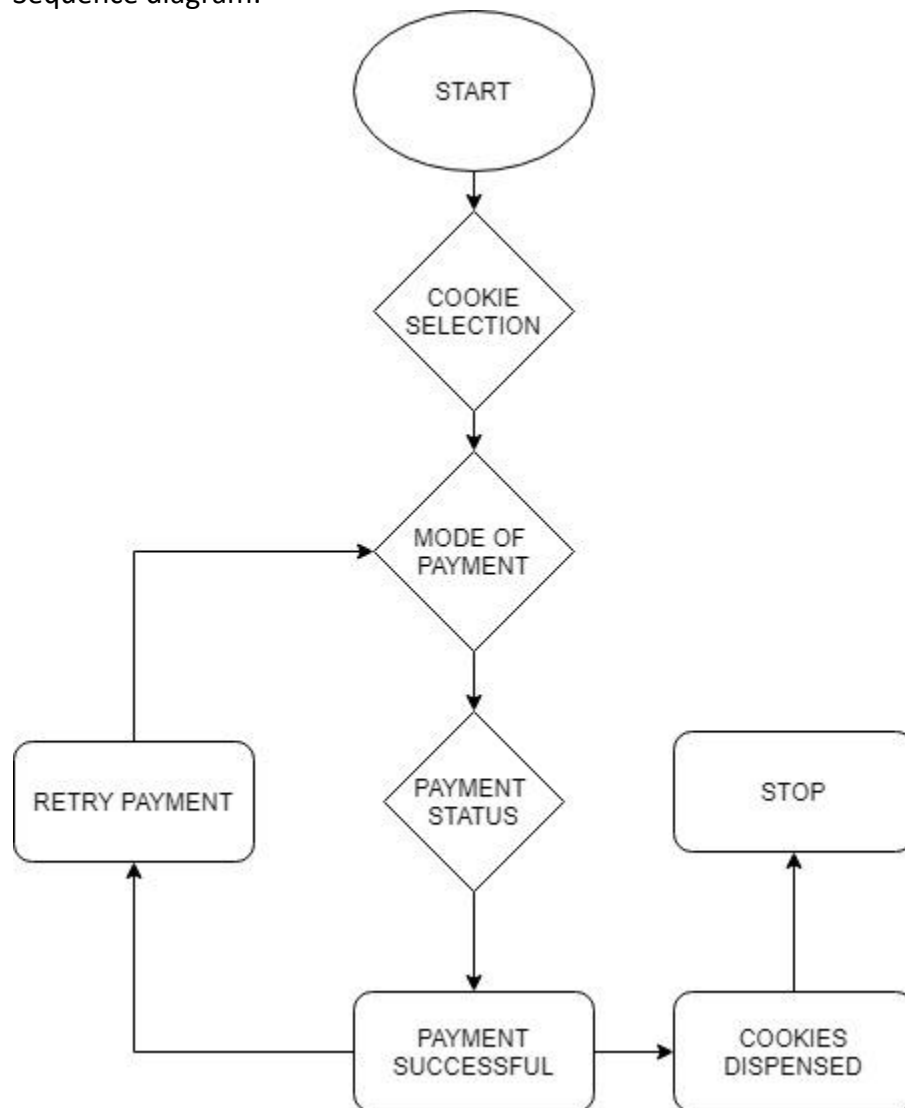
Low Level Requirements:

ID	Description
LL_01	To check the efficiency of Code for the Machine
LL_02	Continuous update on Quality of Cookies
LL_03	Implementation of Different Sensors
LL_04	Meeting the Power requirement

Table: Low Level Requirements

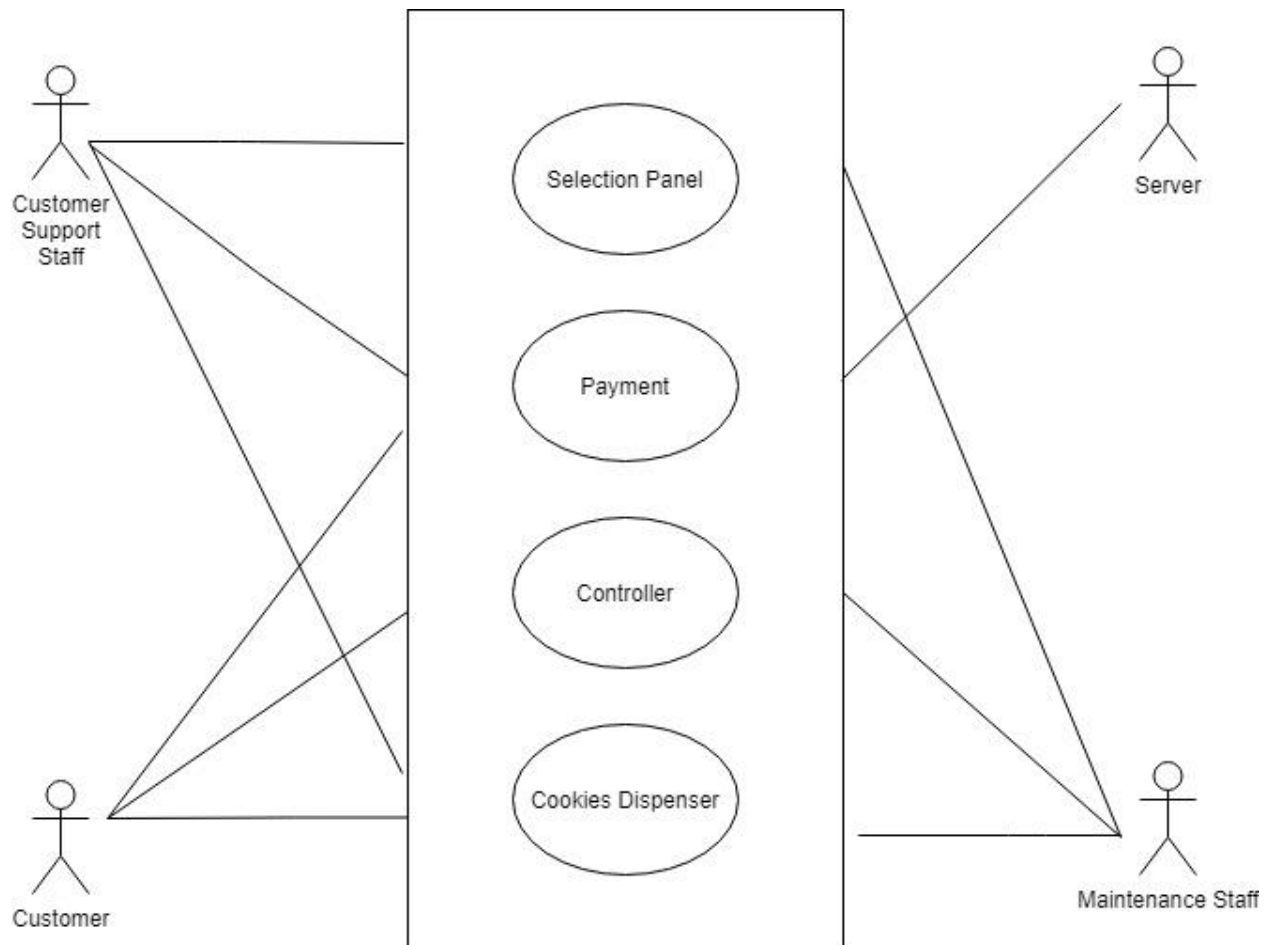**L&T Technology Services** **CONFIDENTIAL**

Design Analysis:

Behavioral diagram

Sequence diagram:

Use case diagram:

Structural diagram

Class Diagram:
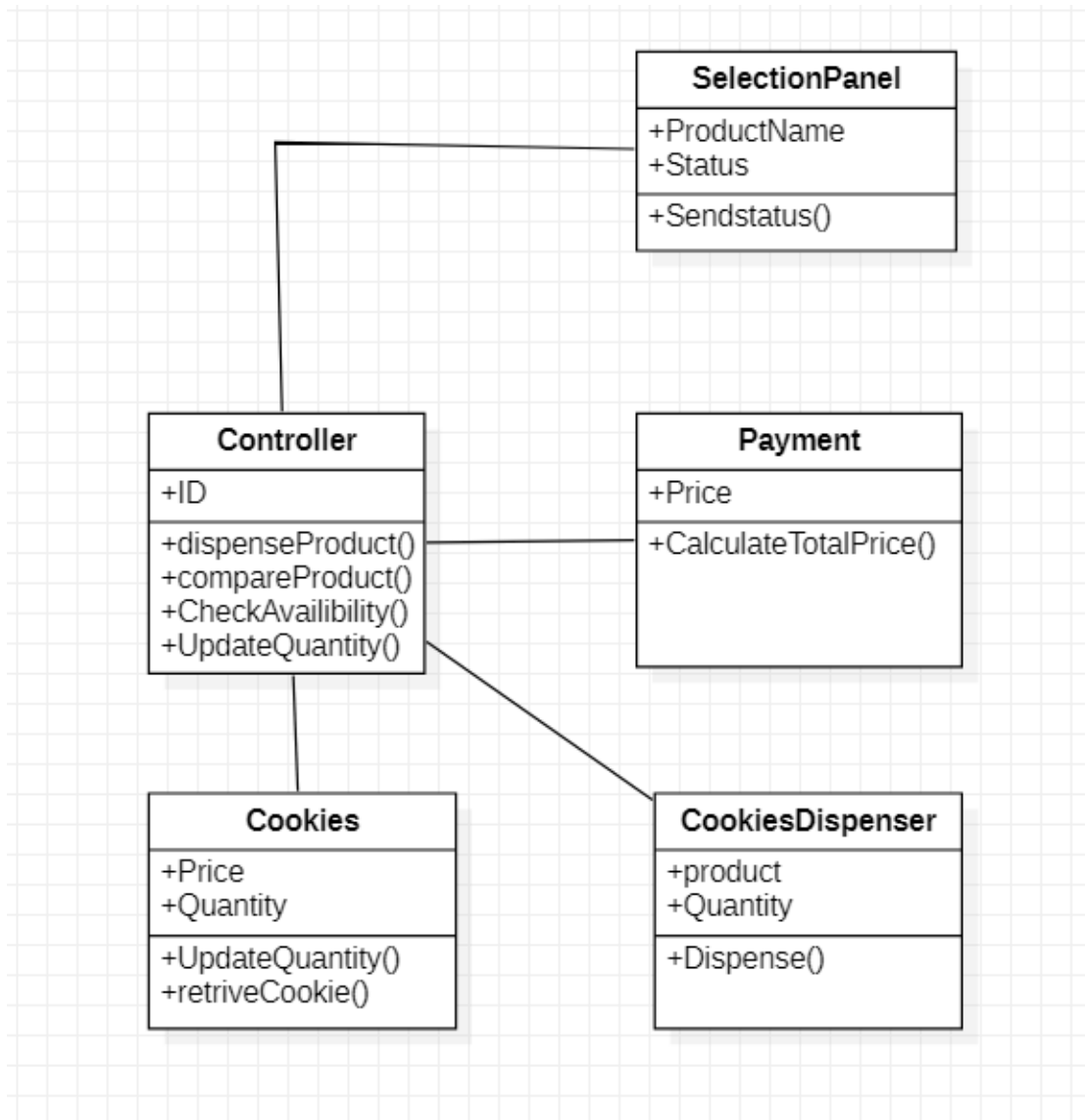
Unit level Payment Chart

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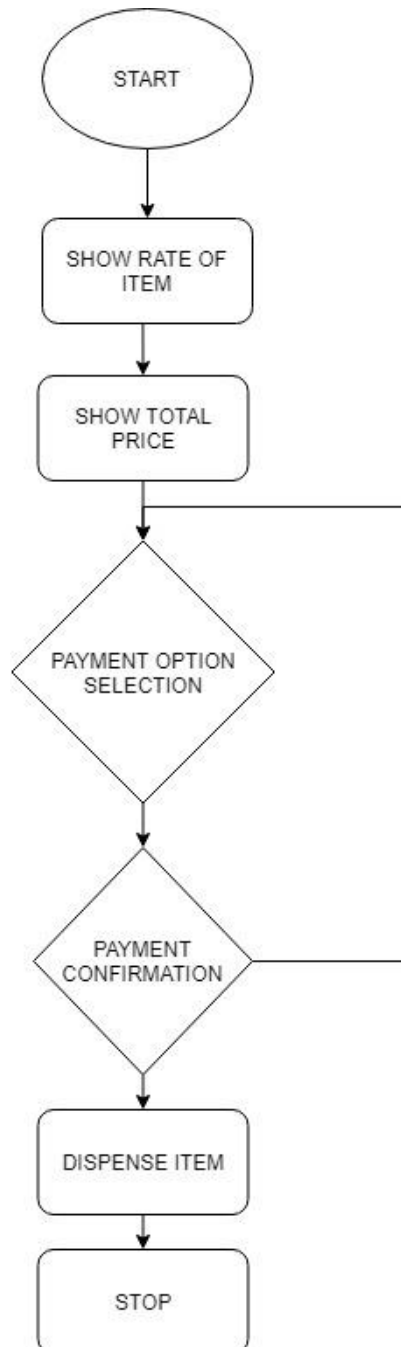
Testing

Unit testing:

Test id	Description	Expected input	Expected output	Actual output
HH_01	On add option	Cookies Selection	The selected item should be added	Cookies are added
HH_03	On view option	-	List of available cookies	List of Cookies available is shown
HH_04	On update option	Available Quantity changed	The number of available quantities should change	Quantity Updated
HH_02	On delete option	The selected item deleted	The selected item removed	Cookie Removed

Table: Unit Testing

Integration testing:

Test id	Description	Expected input	Expected output	Actual output
LL_01	Program runs or not	Console screen should display	Home screen should display	Home screen should display
LL_02	Add, update, delete function are available	Selection of option number	List of option available	List of option available
LL_03	Selected option is directed to the specified function	Option number	Display of option function	Display of option function
LL_04	On selection of exit	Exit option	Exit program	Exit program

Table: Integration testing

ACTIVITY 2

TOPIC: IMPACT OF FAILURE OF MOBILE PHONES
Link to the File

PRODUCT	CAUSE	IMPACT	OUTCOME	REFERENCE
BlackBerry	The main reason to BlackBerry's failure was their ignorance and choosing to stick with the Query keyboard whilst leaders like Apple provided a full touchscreen interface to which consumers preferred	In 2018 blackberry announced that they will stop making Phones	The sale of Blackberry phones dropped rapidly.	https://medium.com/@edwardmuldrew/what-happened-to-blackberry-7f5f37623873#:~:text=A%20key%20reason%20to%20BlackBerry%27s,interface%20to%20which%20consumers%20preferred
Samsung Galaxy Fold (2019)	Expensive - close to $2,000, alarmingly fragile-potential for dust to ruin the display	Samsung had to stop production once because of breaks.	The sales went down and the model was declared a failure	https://9to5google.com/2019/04/24/galaxy-fold-screen-failures/
Palm Pre	There are two major reasons behind Palm Pre's failure. First, without a real App Store of its own, it couldn't compete with the likes of Apple and Google. Secondly, and more important, the physical build quality of the phone was spotty at best.	In July 2010, Palm was purchased by Hewlett-Packard (HP) and in 2011 announced a new range of webOS products.	Overall sales were modest from the outset. The sales were not enough to keep the company afloat, leading to its acquisition by HP.	https://www.goliath.com/tech/13-revolutionary-cell-phones-that-failed-miserably/
Microsoft Windows Phone	At the heart of Windows Mobile's failure was Windows itself, an OS designed for a big screen, crammed into a little screen product. The Windows Mobile effort	The impact was not a severe one that could hurt the parent company MICROSOFT in a higher	Windows Mobile had a lot of potential but was terminally plagued by a series of unforced and often repeated errors.	https://www.computerworld.com/article/3336057/how-microsoft-failed-with-windows-10-mobile.html#:~:text=At%20the%20heart%20of%20Windows,into%20a%20little%20screen%20product.&text=So

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	then became an effort to throw good money after bad. Microsoft continued to increase budget, up until the point where they bought most of Nokia, but behind where it needed to be to counter a strengthening Apple and Google. Windows Mobile was crippled because it was too tightly connected to Windows, and Microsoft executed a too-little, too-late, strategy regarding funding.	marginally manner but a large amount of efforts, Development, Marketing and sales went in vain and acquiring NOKIA amidst all this hurt the wound deeper as the ample organization was also to blame for and Latter affected the sales of the upcoming NOKIA Phones (Android).	These ranged from not assuring the success of Danger, which became foundational to Android, to not executing on an historic Microsoft strategy, to not funding timely…and some of the most horrid execution seen. The Reputation Microsoft had thought out, took a deeper impact when Nokia was acclaimed and Lumia was introduced only made the IMPACT worse.	%2C%20Windows%20Mobile%20was%20crippled,%2Dlate%2C%20strategy%20regarding%20funding.
Amazon's Fire Phone	Too Expensive Small App Store Features of Limited Interest Poor Battery Life	Customers gave the smartphone a lackluster rating of 2.6 out of 5 stars. Reviewers called the device "forgettable" and "mediocre."	The Phone's Price was dropped from $199 to 99 Cents.	https://time.com/3536969/amazon-fire-phone-bust/#:~:text=4%20Reasons%20Amazon's%20Fire%20Phone%20Was%20a%20Flop.-A%20man%20holds&text=But%20consumers%20apparently%20didn't,Phones%20still%20in%20its%20inventory.
HTC First	The hardware for HTC First was	The price of HTC First	HTC First was scrapped a year	https://www.goliath.com/tech/13-revolutionary-cell-

unremarkable. Too much competition. The phone was too expensive.	dropped from $99 to $0.99 in a month.	later.	phones-that-failed-miserably/

ACTIVITY 3

TOPIC: UML VS SysML

UML	SysML
UML is a standardized language for specifying software systems	SysML uses a subset of the diagrams defined by UML and has extensions. It is a UML-profile.
UML is software-centric	SysML is more engineering systems oriented. Used in system level design on SoC
Composite structures, which are seldom used in UML.	Composite structures take a central role in SysML as "Blocks".
UML is used to represent software semantics (interpretations of notations).	SysML expresses systems engineering semantics (interpretations of notations) better than UML.
Bigger than SysML and difficult to learn	SysML is smaller and easier to learn than UML.
UML projects have set of elements, diagrams, and profiles.	SysML has a set of elements, diagrams and profiles along with additional capabilities for requirements management.