GUJARAT TECHNOLOGICAL UNIVERSITY

Chandkheda, Ahmedabad

Affiliated

Marwadi Education Foundation, Rajkot

Faculty of Engineering

A Report On

(Operating System)

Under subject of

DESIGN ENGINEERING –1B

B. E, Semester – IV

(Computer Engineering)

Submitted

by: Group:

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Academic

year (2023)

CANDIDATE'S DECLARATION

We hereby declare that the work presented in this project entitled "**Operating System"** submitted towards completion of project in **Fourth Semester** of B.E. (Computer) is an authentic record of our original work carried out under the guidance of "**Prof. Munindra Lunagaria"**.

We have not submitted the matter embodied in this project for the award of any other degree.

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This is to certify that the "**Operating System**" has been carried out by **Yash Idhatiya** under my guidance in fulfillment of the subject Design Engineering-1B in COMPUTER ENGINEERING (4thSemester) of Gujarat Technological University, Ahmedabad during the academic year 2023.

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This is to certify that the "**Operating System**" has been carried out by **Jainam Parmar** under my guidance in fulfillment of the subject Design Engineering-1B in COMPUTER ENGINEERING (4th Semester) of Gujarat Technological University, Ahmedabad during the academic year 2023.

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Yash Idhatiya
Harmi Sangani
Piyush Solanki
Jainam Parmar
Pragnesh Vagadiya

ABSTRACT

A computer system consists of many resources like hardware and software, which are useful to complete a task. The common required resources are input/ output devices, memory, file storage space, CPU etc. The operating system acts as a manager for all the above resources and allocates them to specific programs and users, whenever necessary to perform a particular task. An operating system is the interface between the user and the machine. Here our main goal is finding the new ideas for involving existing computer operating systems.

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CHAPTER 1: INTRODUCTION

Problem summary

We all use many operating in many system-like computers, laptop, mobile phone, etc. But it has many issues or features that can be improve. In some computer operating system major problem is taken more booting time, not efficient memory or space management. So, here try solve that problem by improving some of its functionalities.

Aim

The main aim of our project is to have some of solve some errors or problem in operating system so its performance can improve.

CHAPTER 2: DESIGN THINKING PHASE

2.1 AEIOU CANVAS

ACTIVITIES:

- Process management
- User interface management
- Memory management
- File management

ENVIRONMENT

- Physical operating system
- Virtual operating system
- Emulator like VMware, virtual box

INTERACTIONS:

- Operating system is abstract layer between hardware and software component.
- Command line interface (CLI)
- Graphical user interface

OBJECT:

- Users
- Applications
- Hardware drivers

USERS:

- End users like, students
- Faculties
- Admin
- Employee
- Manager

2.2 EMPATHY CANVAS

Empathy means the experience of understanding another person's condition from their perspective. From Empathy Mapping canvas we discovered and learned about the emotional aspect of our users. Empathy is the foundation of any human design process. The Empathy Mapping is comprised of Users, Stakeholders, Activities and Some Happy & Sad moments.

USERS:

- Students, Faculties, Manager

STAKEHOLDERS:

- Developers
- System Administrators
- Computer Manufactures

ACTIVITIES:

- Memory management
- Process Management
- File management
- Device management
- System call handling

STORY BOARDING

- **Happy Story**: A Programmer want to create a software for computer but he needs to create it for all different kernel system but in our operating system he need to develop it from only from one because our os provide central kernel system .
- **Happy Story**: A disable person want operate all his homemade appliances with voice control so with that our new embedded operating system he can easily do this because it is central platform independent os.

- **Sad Story**: A programmer want to create a software for computer but he uses online payment system for money issues with OS of all various devices because he need to create for all OS because there are not platform independent.

2.3 Problem definition by Prior Art Search

• An operating system project involves researching and researching and analyzing exiting technology or techniques that may be relevant to the problem or solution that the project aims to address. this involves looking at the existing operating system and related project to see if any of them have solutions similar to what the project aims to create, assessing their strengths and weaknesses, and identifying opportunities for improvement or innovation.

2.4 Ideation Canvas

This Canvas Consist of The Idea Behind the User, So in This Canvas Some Brief Ideas Are Express Which Are Express In Empathy Canvas. People Section Consist of Persons Related to User Technically and Similar Persons May Related to User. Then We Divided Activities in Social & Technical and Try To Find Out The Importance Of Each Activity And Situations& Location Regarding Are Find Out Related To Each.

PEOPLE:

- Developer
- Admin
- UI Designer
- END users

ACTIVITIES:

- Error detection
- Memory management
- I/O management

SITUATION/CONTEXT/LOCATION:

- Personal computer
- Office

PROPS/PROBLEM SOLUTION:

- For central Kernal system
- Better recourse management
- Improve booting system
- Good network system

2.5 Product Development Canvas

PURPOSE:

- Managing system resources, providing system mechanism, provide user interface

PEOPLE:

- End users
- Developer
- UI designer

PRODUCT EXPERIENCE:

- Easy to operate, familiar UI, customizable

PRODUCT FUNCTIONS:

- File management
- Networking
- User interface
- Device management

PRODUCT FEATURES:

- Centre kernel
- High accuracy
- Multi-tasking

PRODUCT COMPONENTS:

- Kernal
- Shell
- Virtual memory manager

CUSTOMER REVALIDATION:

- Easy to use
- Multiplatform
- Good device combability

REJECT, REDESIGN, RETAIN:

- Poor task scheduling
- High maintenance
- Poor update system
- Complex for developing

CHAPTER 3: FEEDBACK ANALYSIS WITH USER

Interaction-1

- **User-feedback**: It was taken high memory blocks in main memory.

- **Our implementation**: We optimized the memory uses in such a way; it'll take less space in main memory.

Interaction-2

- **User-feedback**: The language being used is not understandable for every person.

- **Our implementation**: We will provide the content in multiple common and understandable languages.

CHAPTER 4: REFERENCES

- Microsoft Window Operating System
- Linux Kernal System
- Open Source Kernal Distributions

CHAPTER 5: APPENDIX – A

- AEIOU CANVAS

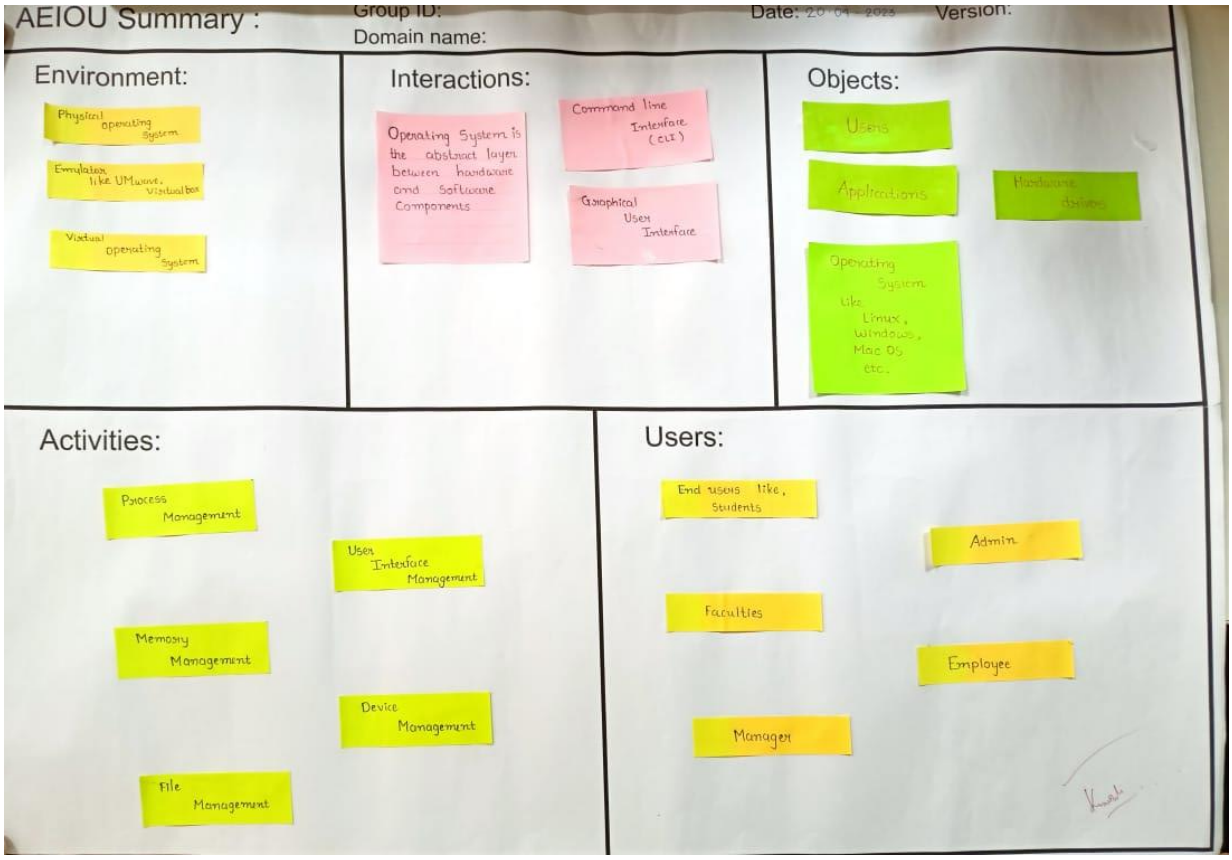


Figure 1.1 AEIOU

EMPATHY CANVAS

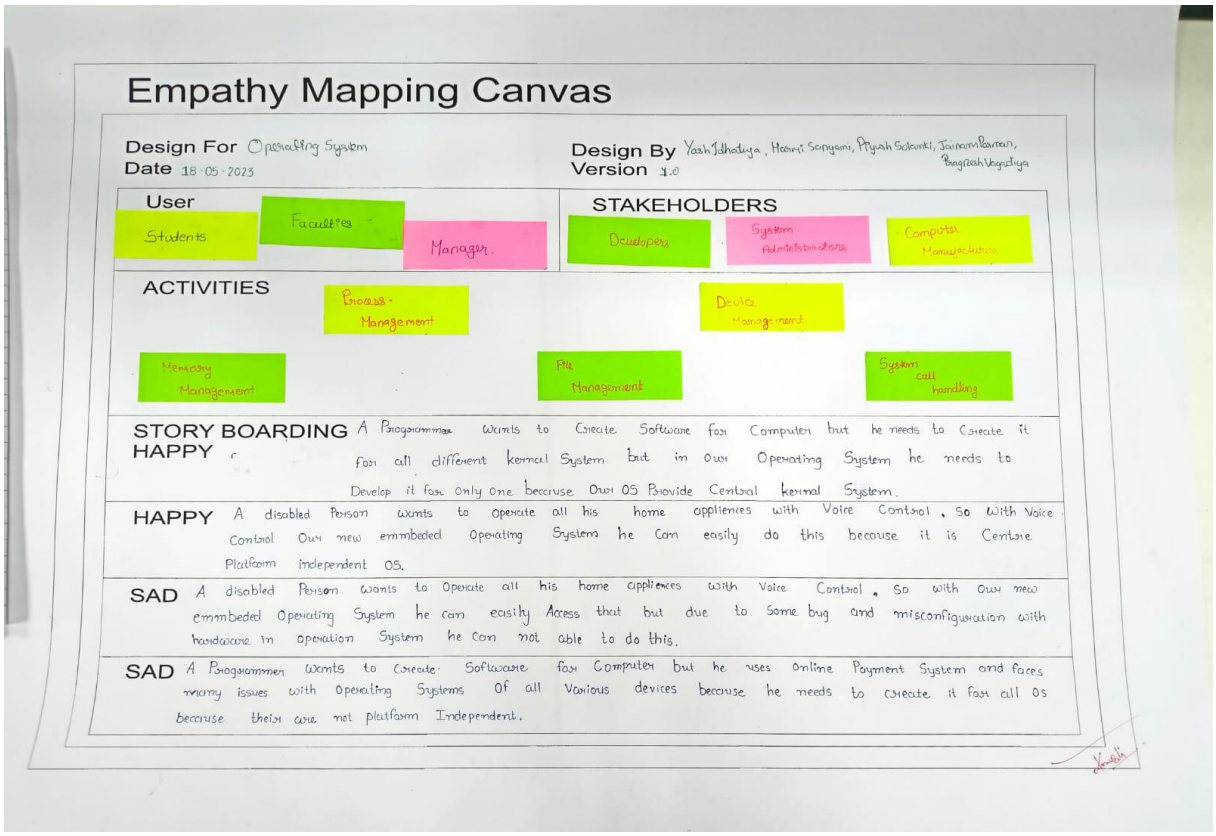


Figure 1.2 EMPATHY CANVAS

IDEATION CANVAS

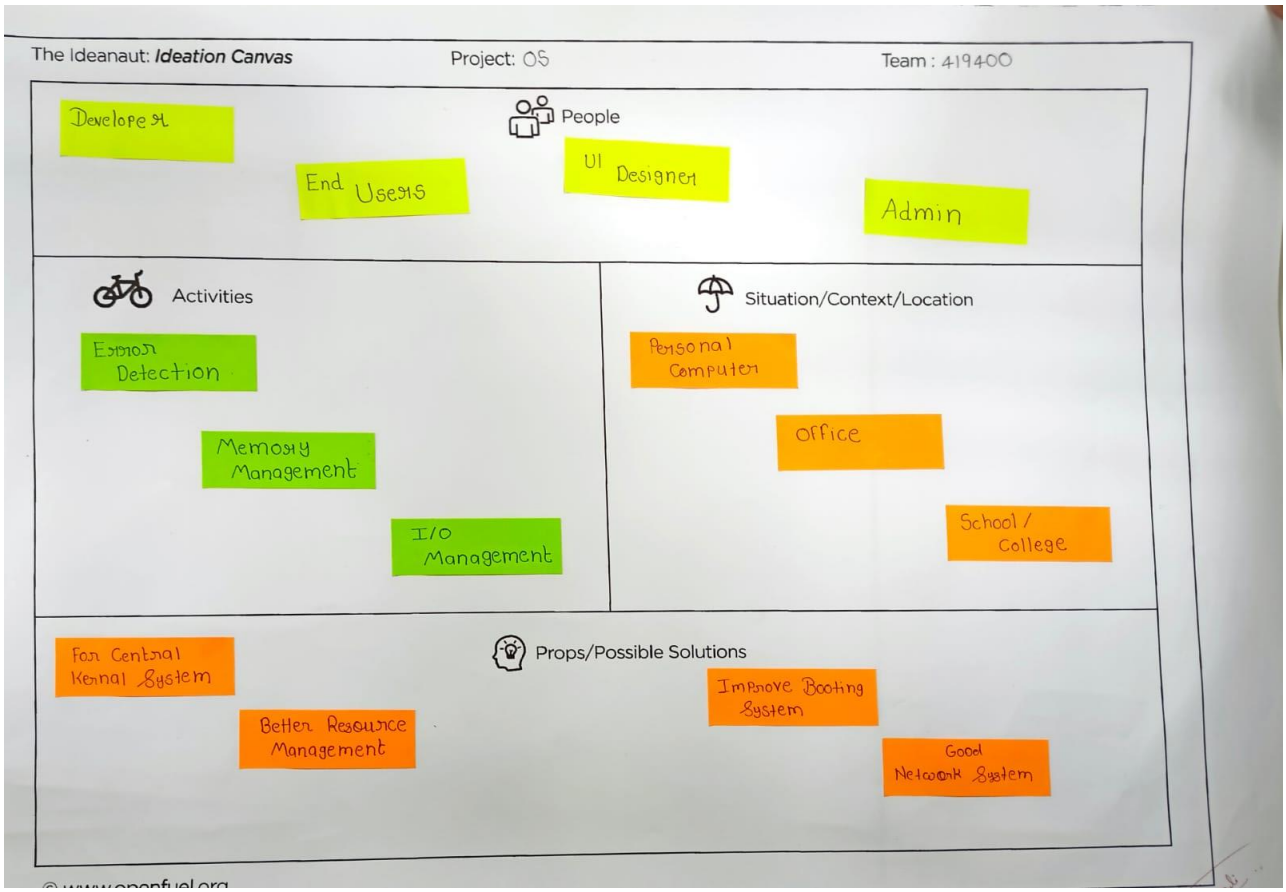


Figure 1.3 IDEATION CANVAS

PRODUCT DEVELOPMENT CANVAS

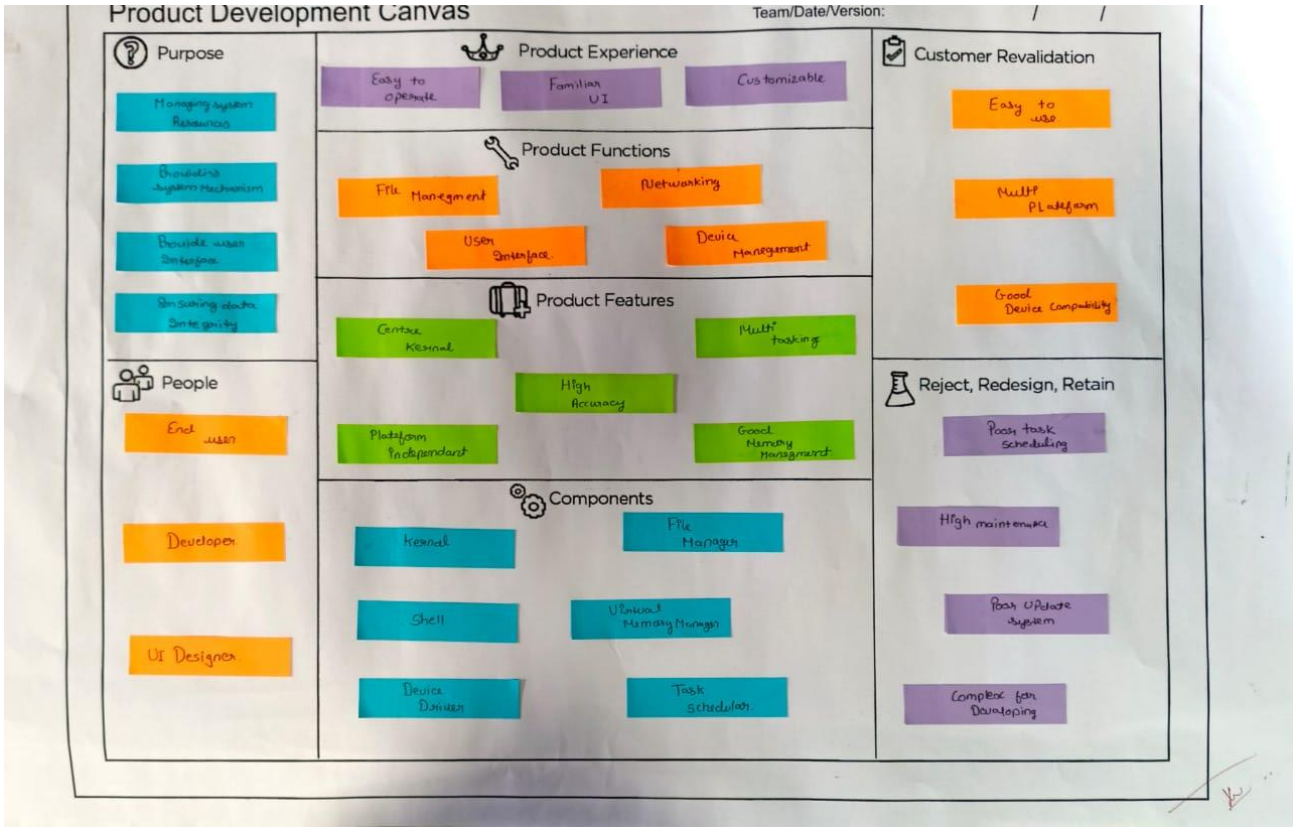


Figure 1.4 PRODUCT DEVELOPMENT

- MIND –MAPPING

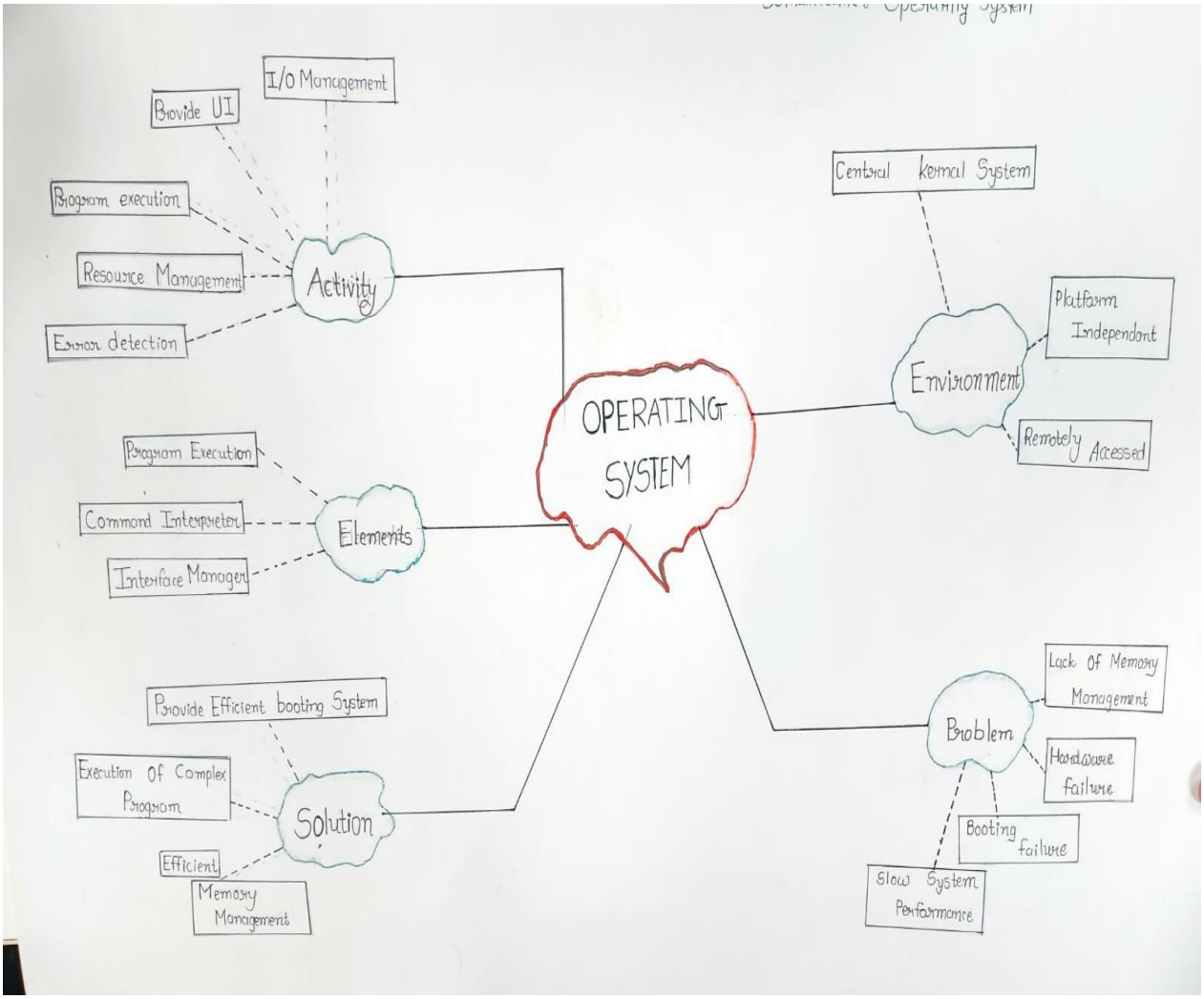


Figure 1.5 MIND MAPPING CANVAS

- LNM

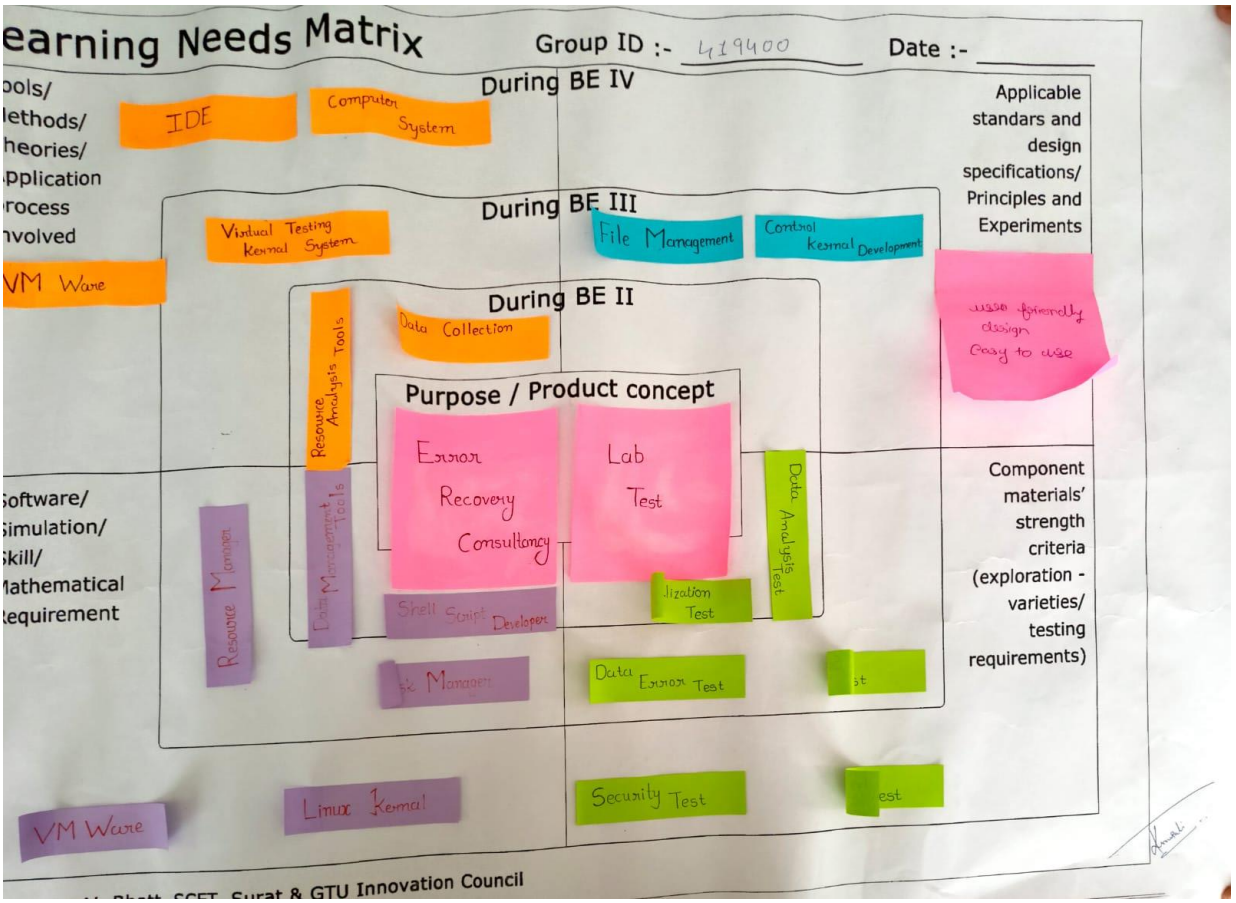
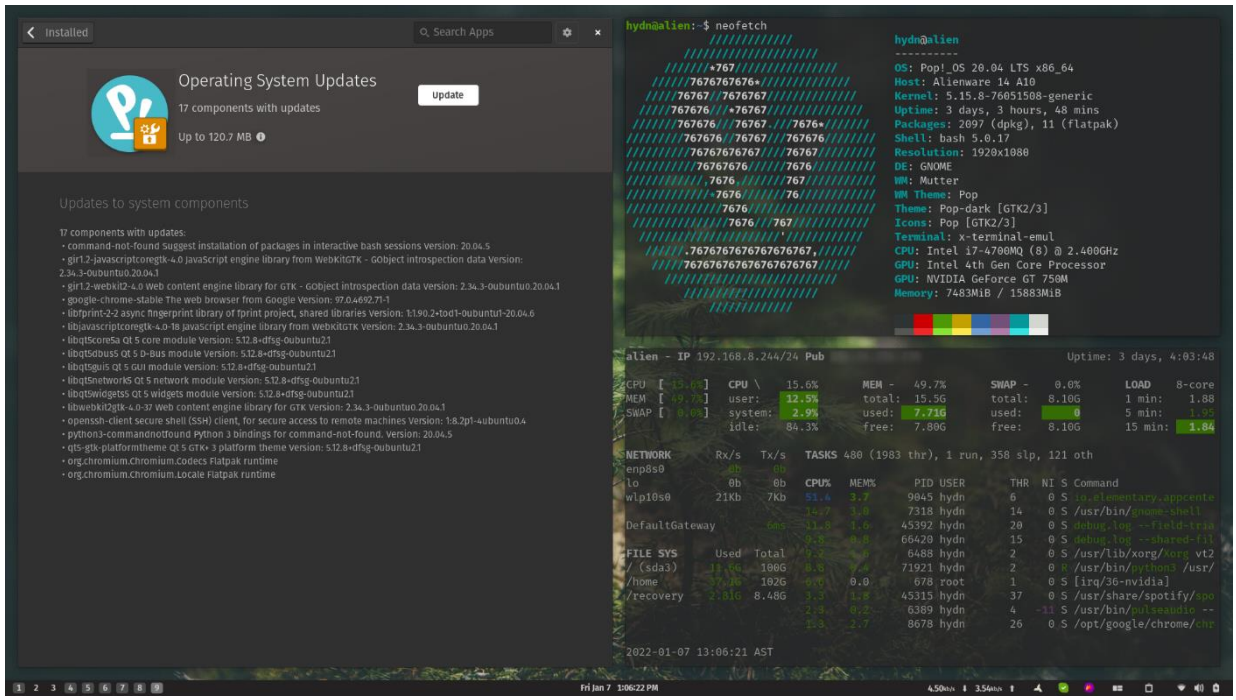


Figure 1.6 LNM

CHAPTER 5: APPENDIX – B