# Rajiv Gandhi University of Knowledge Technologies

( Catering the Educational Needs of Gifted Rural Youth of A.P )

R.K Valley , Y.S.R Kadapa(Dist)-516330

## Project Report
## On
# Personal AI Aide For Computer


**Submitted by**

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**RK Valley**

# Rajiv Gandhi University of Knowledge Technologies

RK Valley, Kadapa(Dist), Andhra Pradesh, 516330


## CERTIFICATE

This is to certify that the project titled " **Personal AI Aide For Computer** " is a bonafide project submitted by **T.SUKUMAR(N180410)** in the department of **COMPUTER SCIENCE AND ENGINEERING** partial fulfillment of requirement for the award of degree **BACHELOR OF TECHONOLOGY** for the year **2023-2024** **carried** out the work under the supervision.

The report has been not submitted previously in part or full to this or any other university or institute for the award of any degree or diploma.

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## Project External Guide

# ACKNOWLEDGEMENT

The satisfaction that accompanies the successful of completion of any task would be incomplete without the mention of the people who made it possible and whose constant guidance and encouragement crown all the efforts success.

I would like to convey thanks to our guide Ms.P.Udaya Sree for guidance, encouragement, co-operation and kindness during the entire duration of course and academics.

I am grateful to to Dr. P .RAVI KUMAR Sir , HOD CSE , for providing excellent computing facilities and congenial atmosphere for progressing our project. At the outset, I would like to thank Honourable Director Sir Prof. A V S S Kumara Swami Gupta , for providing all the necessary resources and support for the successful completion of my course work.

# ABSTRACT

**Personal AI Aide for Computer** project aims to develop an intelligent, user-friendly assistant leveraging machine learning techniques for natural language processing (NLP) and speech recognition. The system empowers users to interact with their desktop environment through voice commands, providing a seamless and efficient experience. The AI Assistant performs diverse actions based on user requests, such as opening applications, executing system tasks, and delivering relevant information. The application is designed to facilitate a straightforward interaction, enhancing the overall accessibility of the assistant. This Desktop AI Assistant not only offers immediate assistance but also sets the stage for future enhancements, making it a valuable addition to modern desktop environments.

# Table of Contents

# 1.INTRODUCTION

## 1.1 Purpose

The purpose of a Personal AI Assistant project is to create an intelligent, interactive, and versatile software application that assists users in various tasks and activities on their desktop computers. The project leverages machine learning (ML) and artificial intelligence (AI) technologies to enhance the capabilities of the traditional desktop environment.

## 1.2 Intended audience and reading suggestions

1)Users

## 1.3 Project Scope

The Personal AI Assistant project brings significant advantages for blind and disabled individuals, fostering inclusivity and accessibility. Through its natural language interaction and voice input capabilities, the assistant provides an accessible means for those with visual impairments to navigate and interact with their computers. The Personal AI Assistant project offers notable advantages for users who value time efficiency and hands-free interactions.The assistant allows users to perform various tasks without the need for manual input, making it particularly beneficial for those who wish to operate their computers hands-free.

# 2. OVERALL DESCRIPTION

The following section presents overall description about the system. The product has been put into a detailed assessment of the system, user, hardware, software and communication interfaces, memory consideration and adoptive requirements.

## 2.1 Product perspective

The project is about creating a smart friend for your computer, like a helpful assistant that understands what you say. This assistant will make your computer tasks easier by doing things for you, answering questions, and even suggesting fun things like music. It's designed to work on different types of computers, making it convenient for everyone. The goal is to make using your computer more enjoyable and stress-free, and the project will follow good practices, be easy to understand.

## 2.2 Product Features

1. Greetings to User
2. Informs Time and Date
3. Open Google,Youtube etc,
4. Play Music
5. Lock the Screen
6. Exit
7. Writing Diary

## 2.3 Operating requirements

### Hardware requirements:

1. Application supports all known operating systems.
2. Monitor with 512gb ROM+4gb RAM .
3. Hard drive should be with free space.

### Software requirements:

1. PYTHON,MODULES (speech_recognition,pyttsx3,os,pygame,datetime,webbrowser,pyautogui).
2. Text Editor,Terminal.

# 3.EXTERNAL INTERFACE REQUIREMENTS

## 3.1 Software Interfaces

The system shall communicate with user for voice command inputs through microphone.The system should communicate with system hardware to perform all the actions and should use above windows 7 and ubuntu operating system.

## 3.2 Hardware Interfaces

A specified computer must match with the above mention requirements in order to gain the maximum benefits from the system in a useful manner.Also need network. Shall be logical address of the system in Ipv6 format.

## 3.3 Communication Interfaces

Communication function required the internet protocol version 6 and it will follow HTTPS.

# 4.FUNCTIONAL REQUIREMENTS

### User interaction and response

- User asks queries in English.
- Assistant performs the actions based on queries.

### Natural Language Interaction

- The AI Assistant should be able to understand and respond to user commands and queries expressed in natural language, i,e spoken.

# 5. NON-FUNCTIONAL REQUIREMENTS

## 5.1 Performance

Performance will depend on the hardware and software components.

## 5.2 Software quality

Its depend on the code and design used to develop the system.

## 5.3 Availability

The system is always available without any time limitations.But the only condition is computer should connected with internet.

## Design Introduction:

Design is the first step in the development phase for any techniques and principles for the purpose of defining a device, a process or system in sufficient detail to permit its physical realization. Once the software requirements have been analyzed and specified the software design involves three technical activities - design, coding, implementation and testing that are required to build and verify the software.

The design activities are of main importance in this phase, because in this activity, decisions ultimately affecting the success of the software implementation and its ease of maintenance are made. These decisions have the final bearing upon reliability and maintainability of the system. Design is the only way to accurately translate the customer's requirements into finished software a system.

Design is the place where quality is fostered in development. Software design is a process through which requirements are translated into a representation of software. Software design is conducted in two steps. Preliminary design is concerned with the transformation of requirements into data.

## 6.UML DIAGRAMS

UML stands for Unified Modeling Language. UML is a language for specifying, visualizing and documenting the system. This is the step while developing any product after analysis. The goal from this is to produce a model of the entities involved in the project which later need to be built. The representation of the entities that are to be used in the product being developed need to be designed.

## 6.1 DFD Diagram

DFD stands for Data Flow Diagram, which is a graphical representation of how data moves through a system. It is a modeling technique used in software engineering to visualize and analyze the flow of data within a system or between various components of a system.

A Data Flow Diagram typically includes the following components:

1) **Processes** : Repesented by circles or ovals, processes depict the functions or operations performed on the data. Each process transforms input data into output data.

2) **Data Flow** Represented by arrows, data flows illustrate the movement of data between processes, data stores, and external entities. They show how data is input, processed, and output within the system.

3) **Data Store** Represented by rectangles, data stores symbolize where data is stored within the system. This could include databases, files, or any other storage mechanism.

4) **External Entities** Represented by rectangles, external entities are external systems, users, or sources that interact with the system. They are sources of input or destinations for output.

DFDs are categorized into different levels

- **Level 0** : lso known as a context diagram, it provides an overview of the entire system, showing the system boundary, external entities, and major data flows.

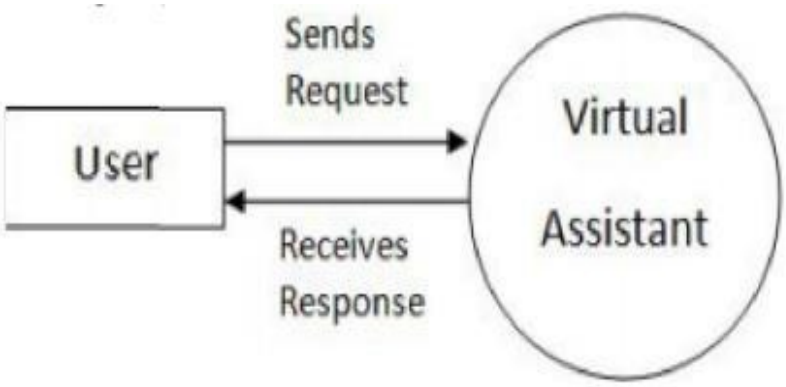
- **Level 1** : Breaks down the processes in the context diagram into more detailed sub-processes, illustrating how data flows between them.

- **Level 2 :** and beyond: Continue to break down processes into more detailed levels, providing a more granular view of the system's functionality.

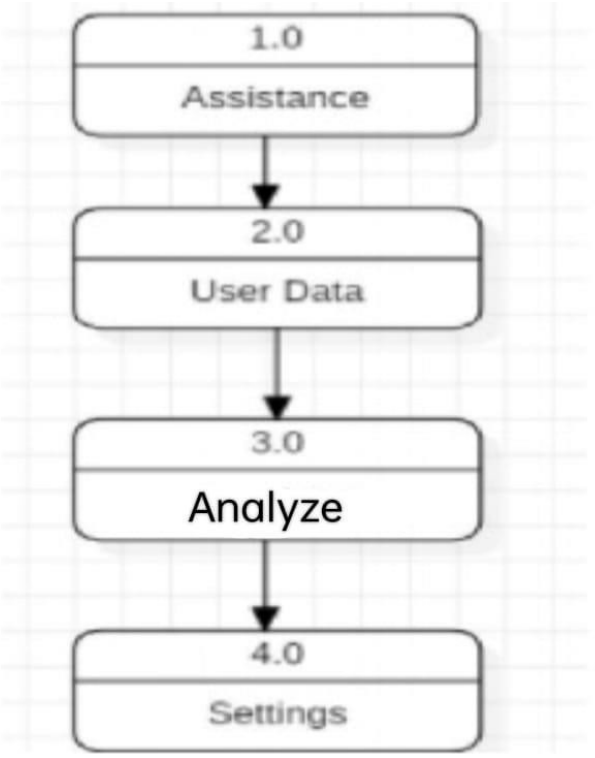
DFDs are valuable for system analysis and design as they help in understanding the flow of information and identifying areas for optimization.They are commonly used during the early stages of software development to communicate with stakeholders, analyze requirements, and guide the design process.

**DFD Diagram:**

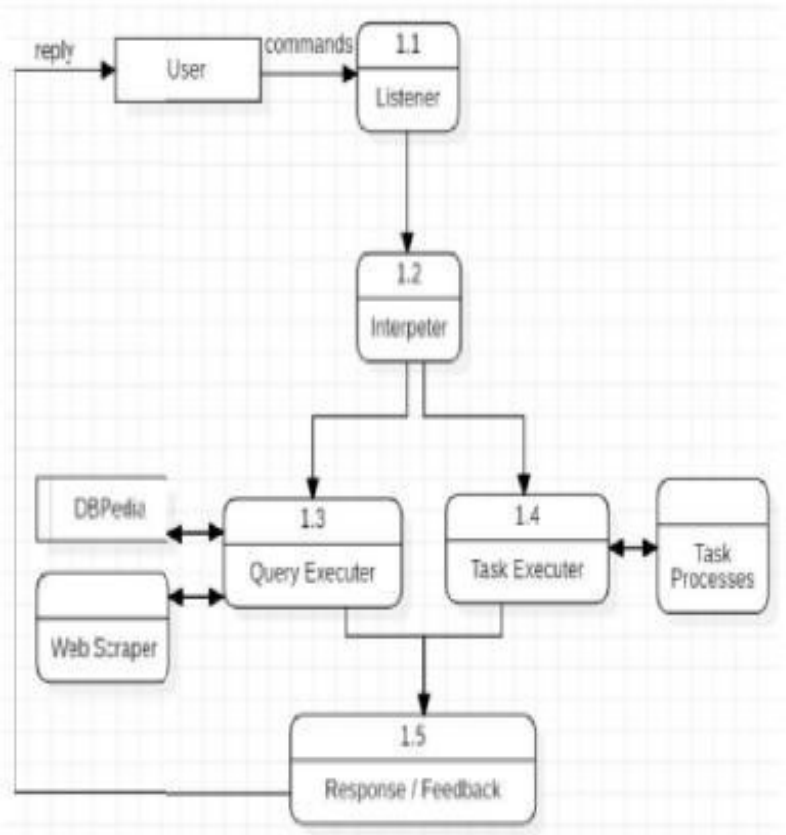
## DFD Level 0 (Context Level Diagram):




## DFD Level 1:



## DFD Level 2:


reply
User
commands
1.1
Listener
1.2
Interpeter
DBPedia
1.3
Query Executer
1.4
Task Executer
Task Processes
Web Scraper
1.5
Response / Feedback

## 6.2 USECASE DIAGRAMS

Use case diagrams model behavior within a system and helps the developers understand of what the user require. The stick man represents what's called an actor.

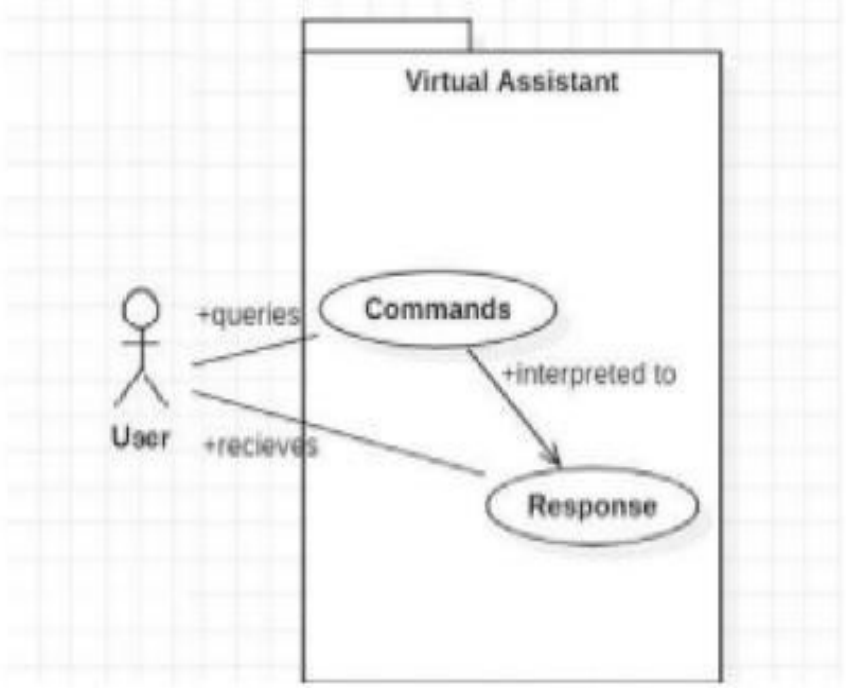
Use case diagram can be useful for getting an overall view of the system and clarifying that can do and more importantly what they can't do.

Use case diagram consists of use cases and actors and shows the interaction between the use case and actors.

- The purpose is to show the interactions between the use case and actor.
- To represent the system requirements from user's perspective.
- An actor could be the end-user of the system or an external system.

**USECASE DIAGRAM:** A Use case is a description of set of sequence of actions. Graphically it is rendered as an ellipse with solid line including only its name. Use case diagram is a behavioral diagram that shows a set of use cases and actors and their relationship. It is an association between the use cases and actors. An actor represents a real-world object. Primary Actor – Sender, Secondary Actor Receiver.

## Usecase Diagram:



## 7.IMPLEMENTATION AND SYSTEM TESTING:

After all phase have been perfectly done, the system will be implemented to the server and the system can be used.

### System Testing

The goal of the system testing process was to determine all faults in our project .The program was subjected to a set of test inputs and many explanations were made and based on these explanations it will be decided whether the program behaves as expected or not. Our Project went through two levels of testing.

1. Unit testing
2 .Integration testing

### Unit Testing

Unit testing is commenced when a unit has been created and effectively reviewed. In order to test a single module we need to provide a complete environment i.e. besides the section we would require. The procedures belonging to other units that the unit under test calls Non local data structures that module accesses.

### Integration Testing

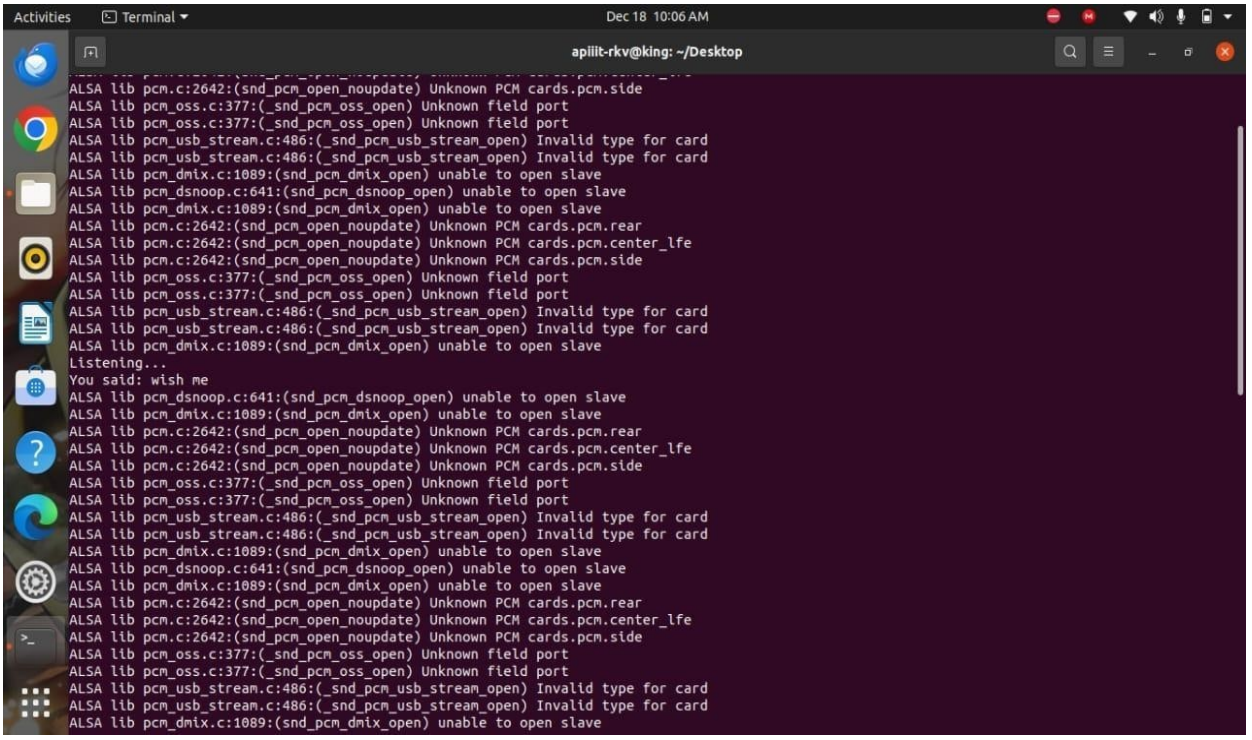
In the Integration testing we test various combination of the project module by providing the input. The primary objective is to test the module interfaces in order to confirm that no errors are occurring when one module invokes the other module.

### Regression testing

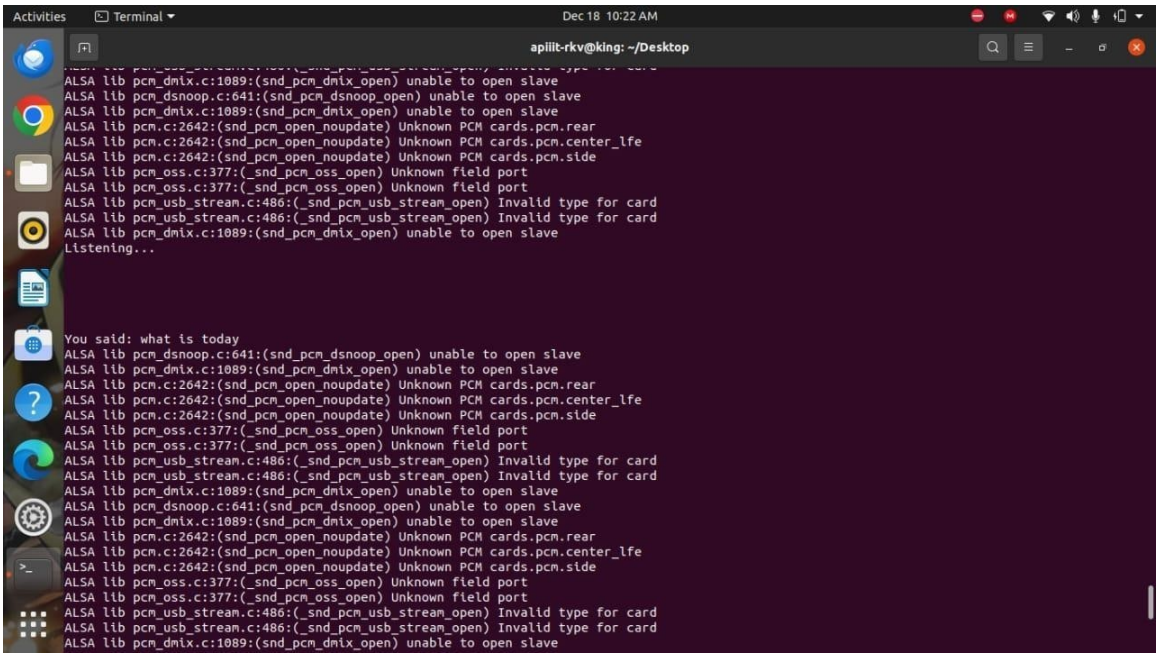
Regression testing is a software testing practice that ensures an application still functions as expected after any code changes, updates, or improvements. Regression testing is responsible for the overall stability and functionality of the existing features.

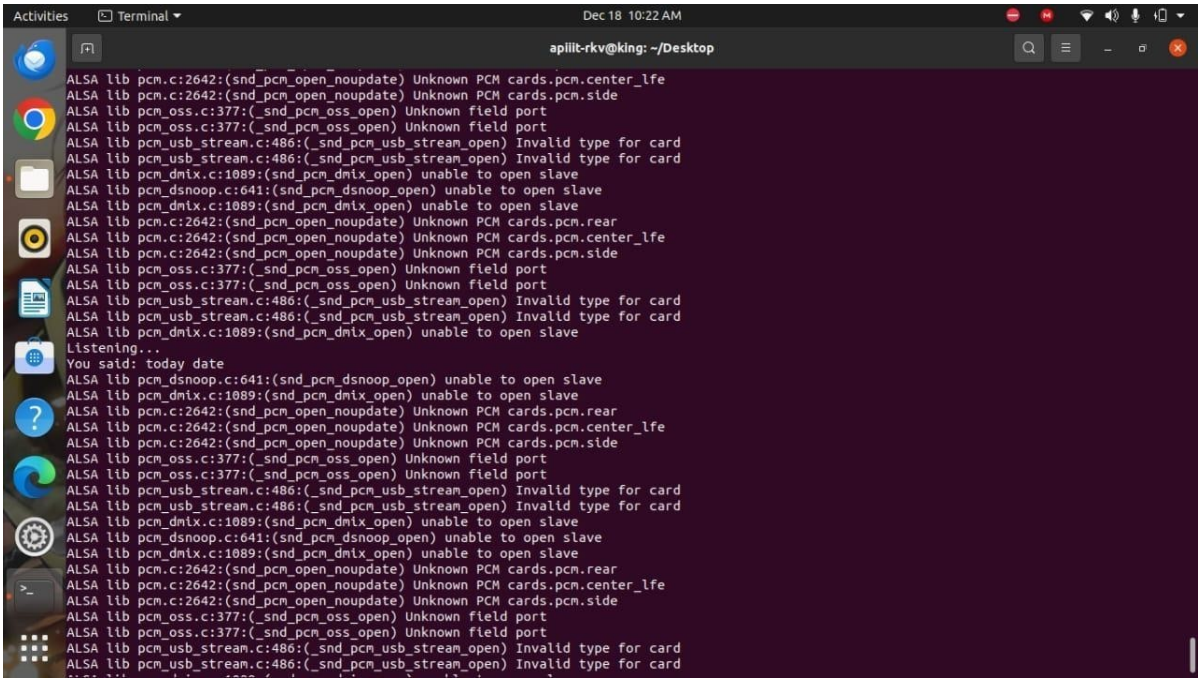
## 8.PROJECT OUTPUT:

### WISH USER:




### DATE AND DAY:




Activities
Terminal
Dec 18 10:22 AM
apiiit-rkv@king: ~/Desktop
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.center_lfe
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.side
ALSA lib pcm_oss.c:377:(_snd_pcm_oss_open) Unknown field port
ALSA lib pcm_oss.c:377:(_snd_pcm_oss_open) Unknown field port
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
ALSA lib pcm_dsnoop.c:641:(snd_pcm_dsnoop_open) unable to open slave
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.rear
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.center_lfe
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.side
ALSA lib pcm_oss.c:377:(_snd_pcm_oss_open) Unknown field port
ALSA lib pcm_oss.c:377:(_snd_pcm_oss_open) Unknown field port
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
Listening...
You said: today date
ALSA lib pcm_dsnoop.c:641:(snd_pcm_dsnoop_open) unable to open slave
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.rear
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.center_lfe
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.side
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ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.side
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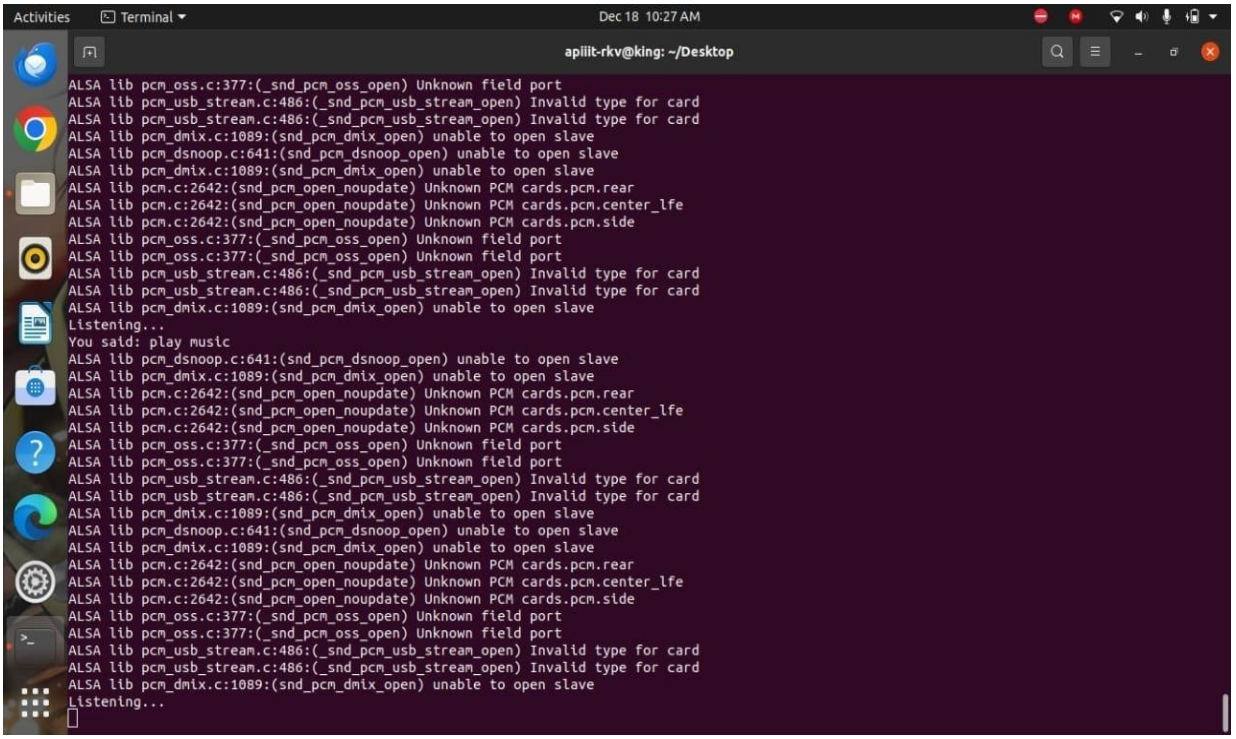
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card

## PLAY MUSIC:


Activities
Terminal
Dec 18 10:27 AM
apiiit-rkv@king: ~/Desktop
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ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
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ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
Listening...
You said: play music
ALSA lib pcm_dsnoop.c:641:(snd_pcm_dsnoop_open) unable to open slave
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
ALSA lib pcm.c:2642:(snd_pcm_open_noupdate) Unknown PCM cards.pcm.rear
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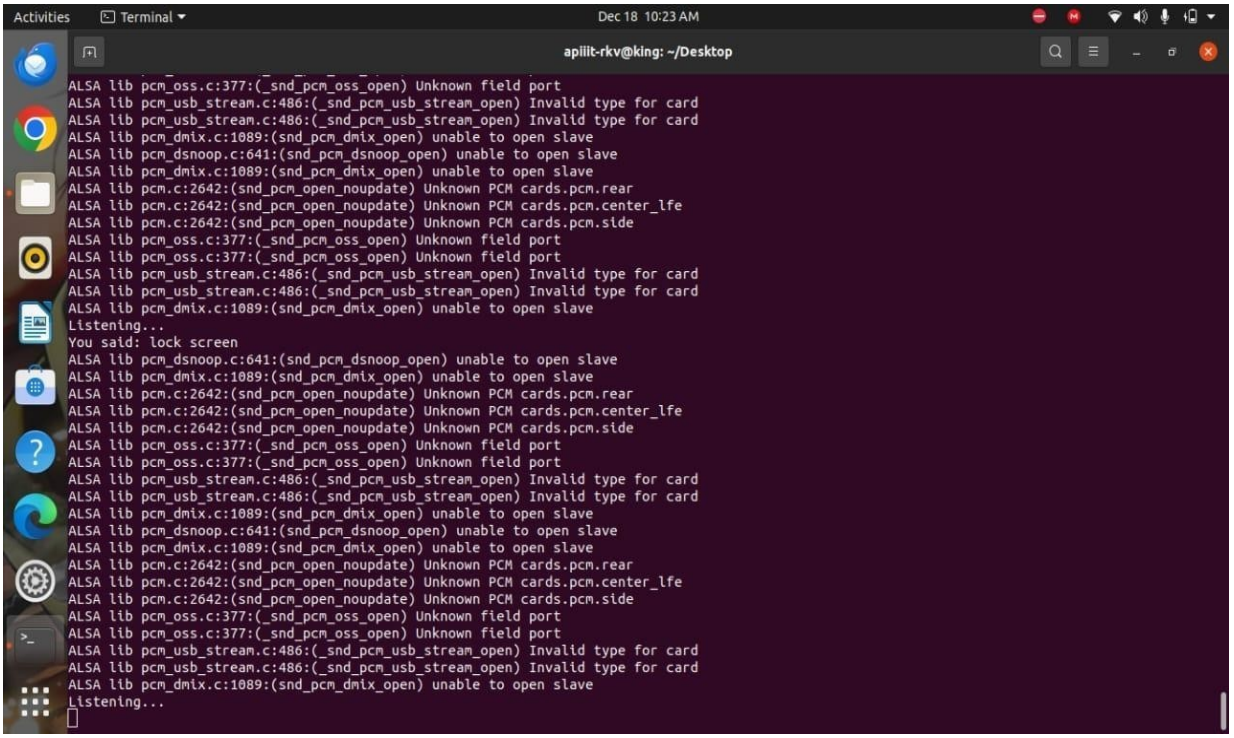
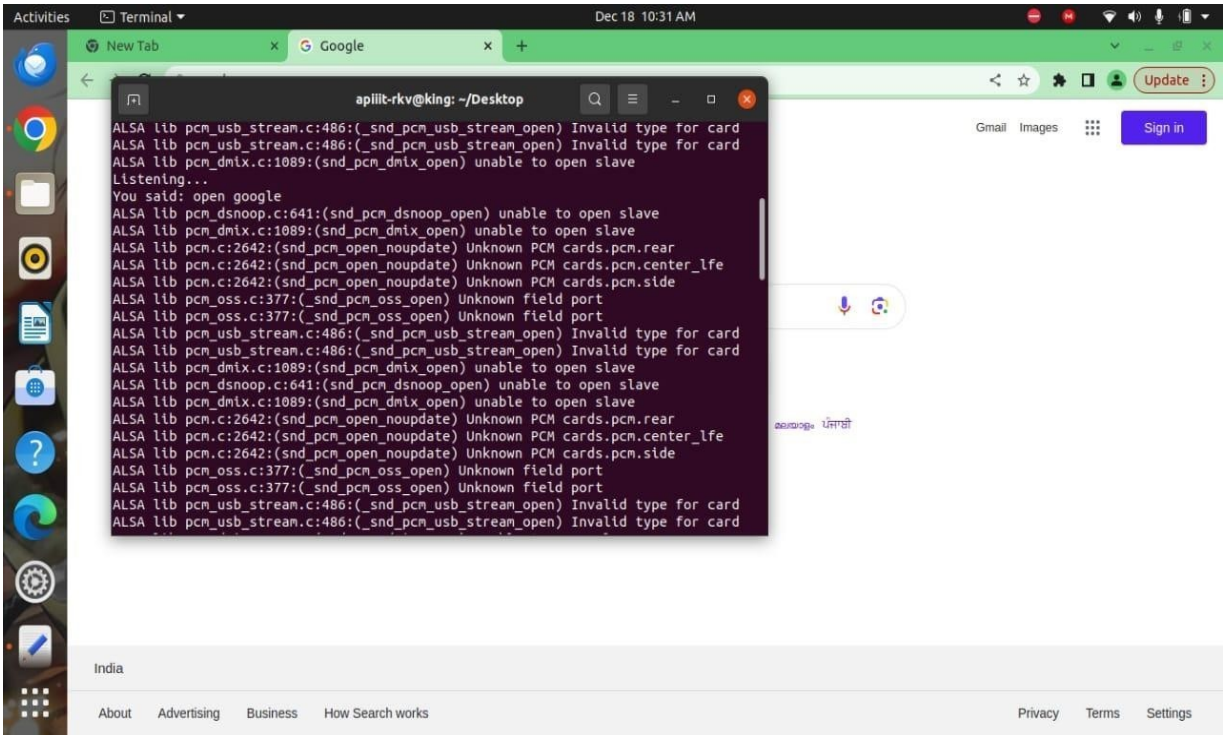
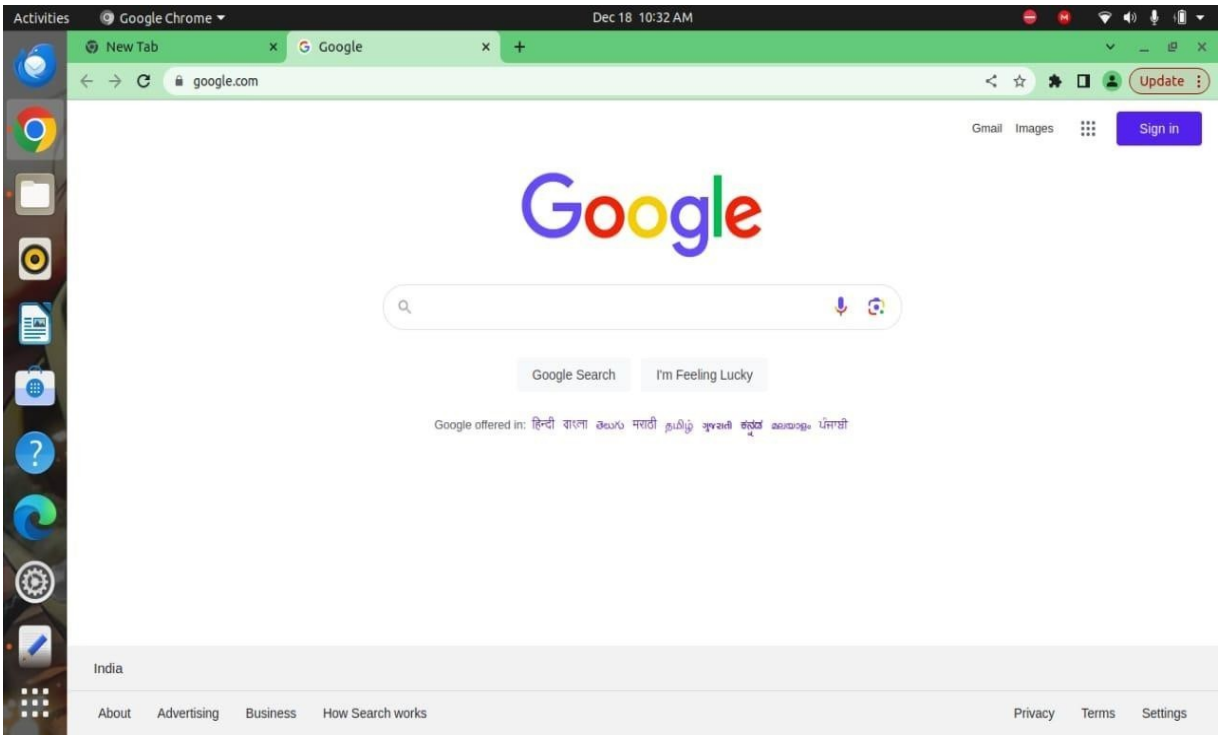
ALSA lib pcm_usb_stream.c:486:(_snd_pcm_usb_stream_open) Invalid type for card
ALSA lib pcm_dmix.c:1089:(snd_pcm_dmix_open) unable to open slave
Listening...

## LOCK SCREEN:

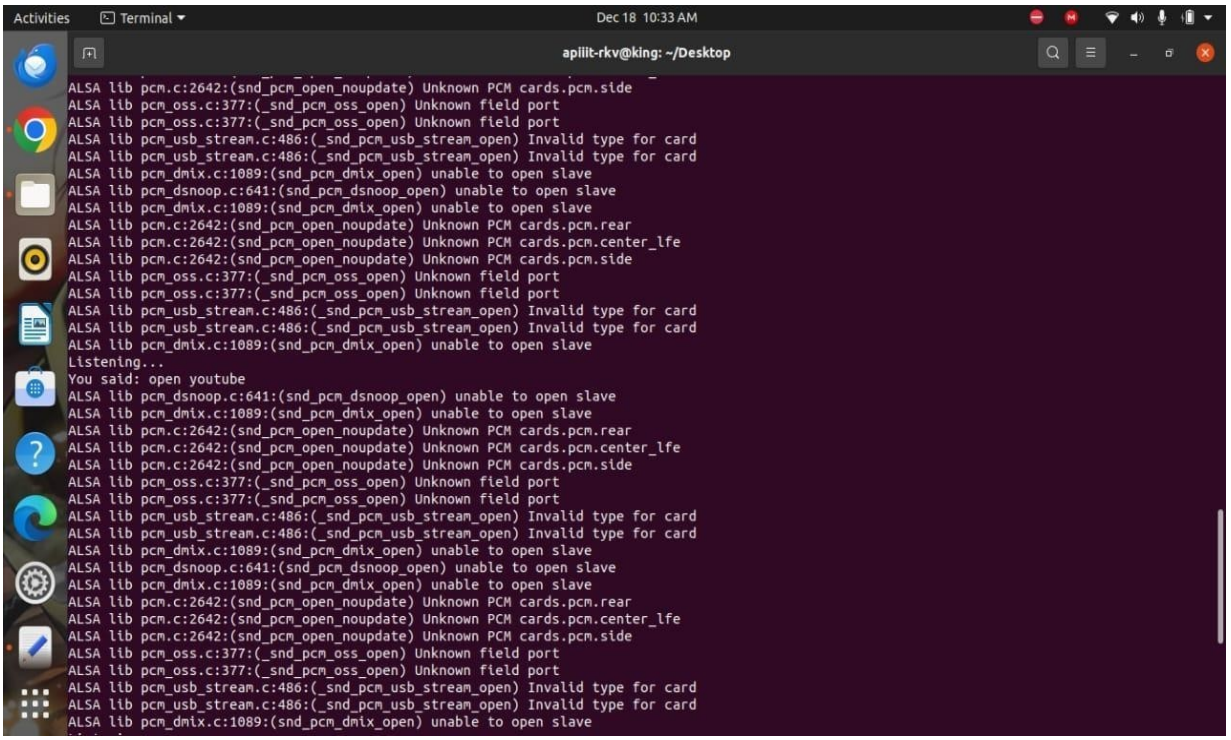


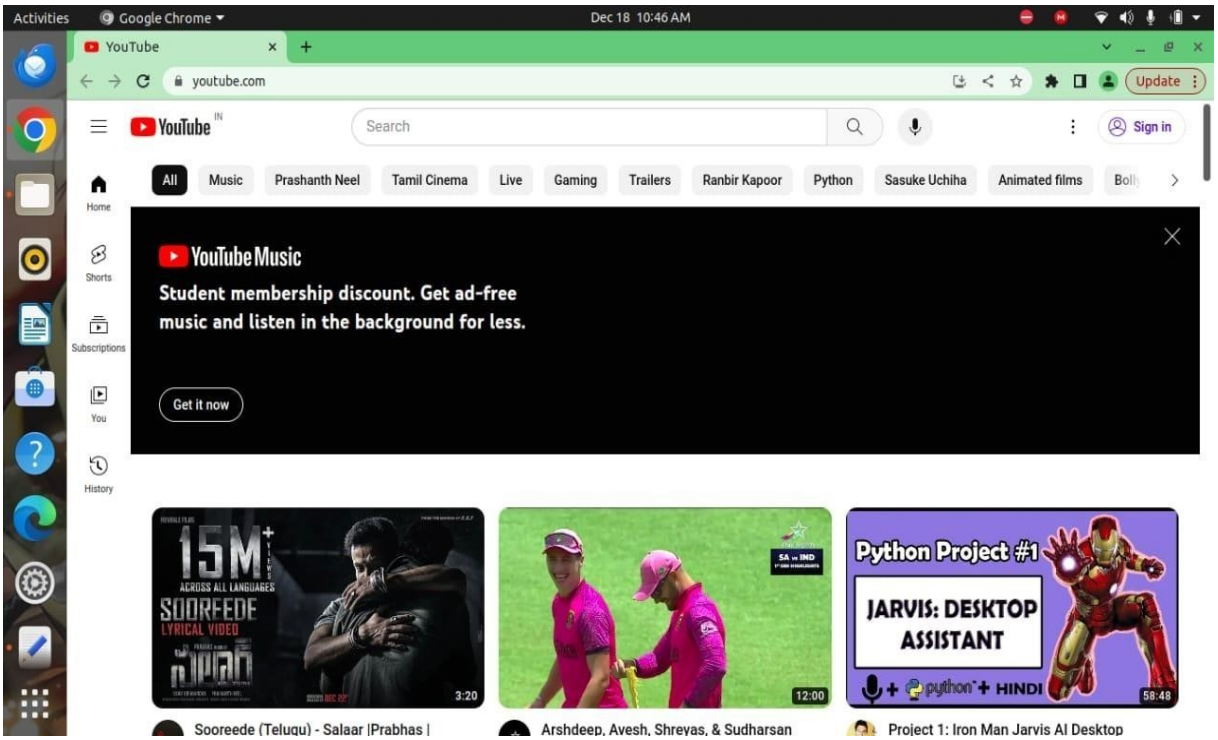

## OPEN GOOGLE:



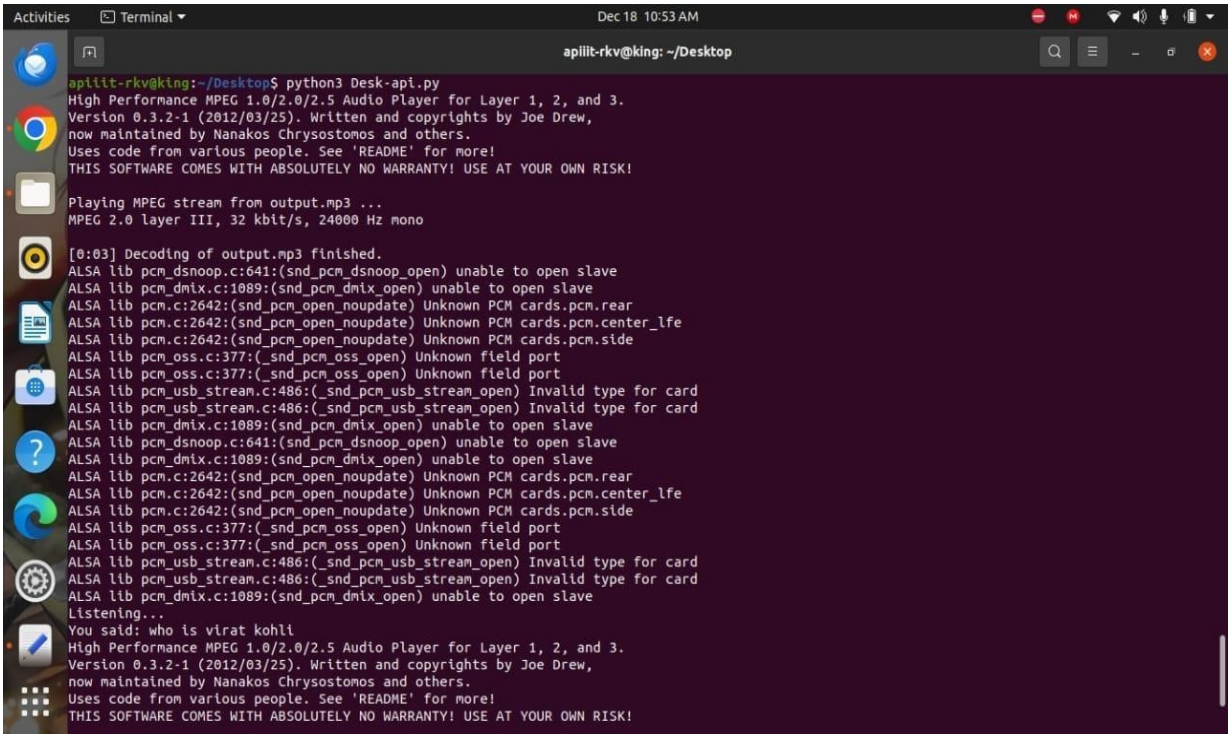



## OPEN YOUTUBE:

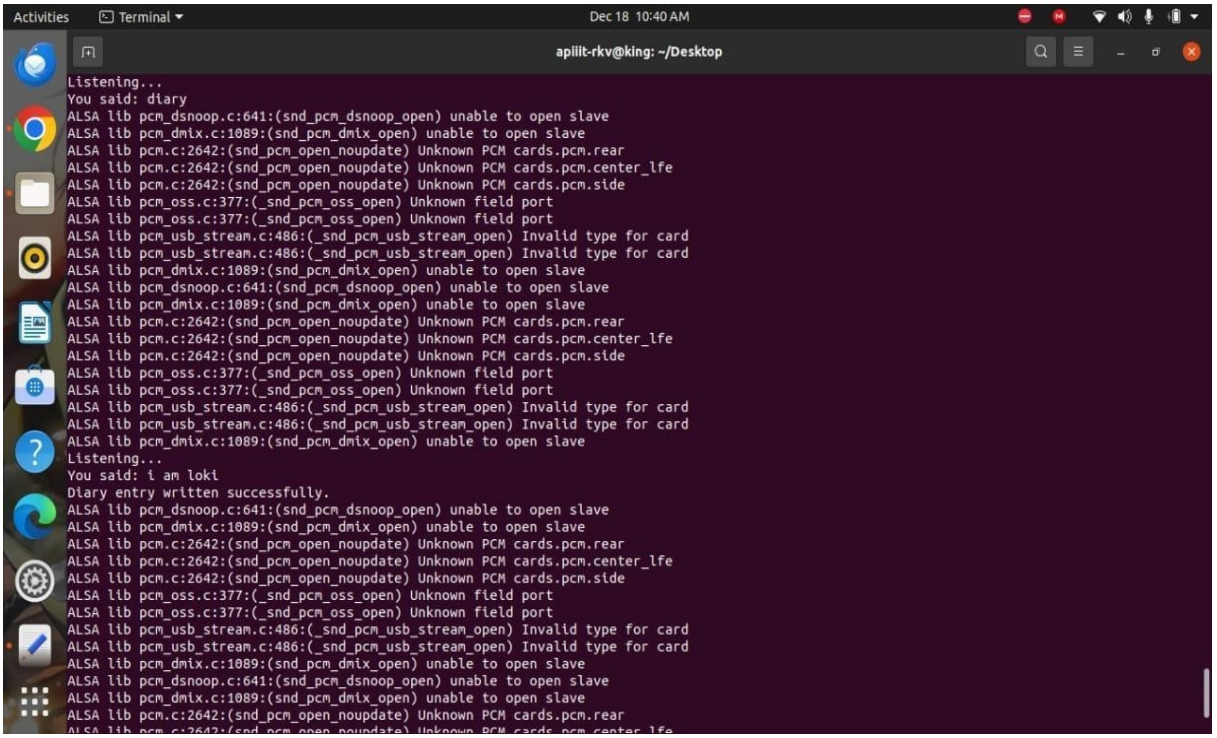


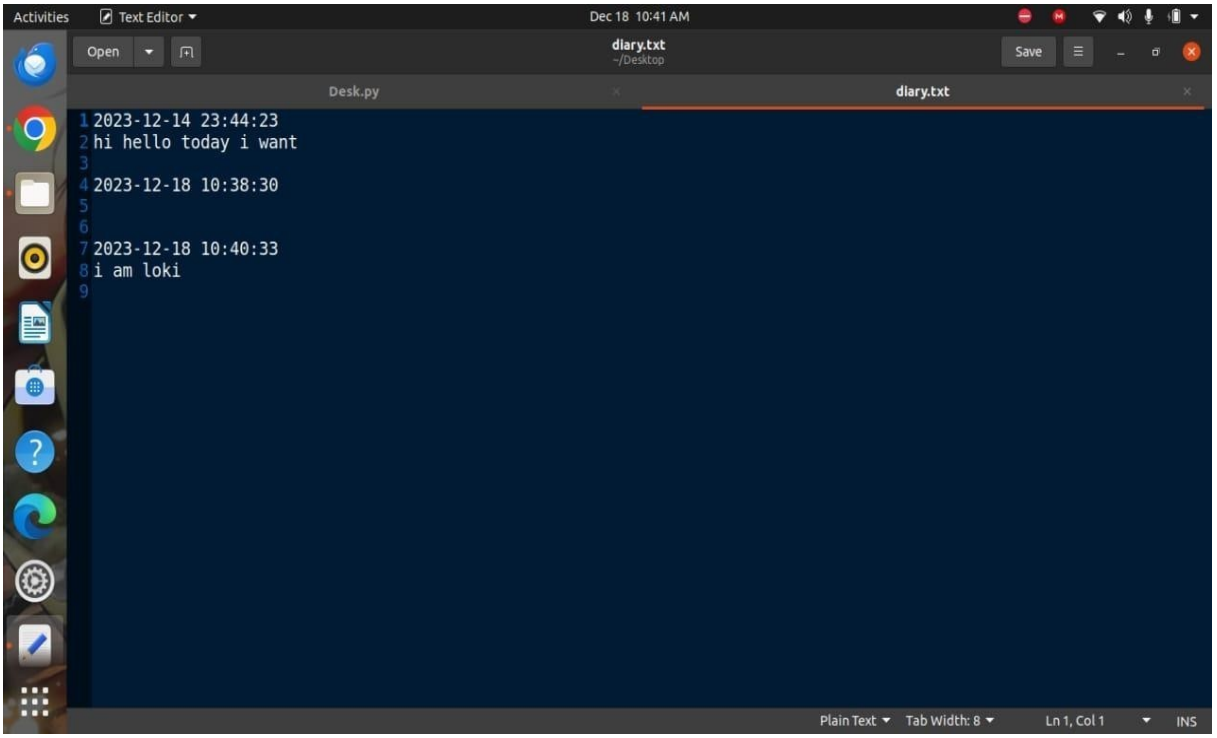



## FUTURE SCOPE(CHAT GPT) :



## WRITING DIARY :



## 9. FUTURE SCOPE & CONCLUSION:

### ➢ IMPROVED ACCURACY:

Make the assistant more precise and accurate for quick interactions and better performance.

### ➢ CONTEXTUAL LEARNING:

The future scope of the Desktop AI Assistant project includes the integration of an advanced contextual algorithm, leveraging machine learning techniques to enhance user interactions. This contextual algorithm will enable the AI Assistant to remember and understand the context of previous user interactions, allowing for more intelligent and personalized responses over time. The algorithm will take into account the user's preferences, historical interactions, and the context of the current conversation to generate more relevant and context-aware outputs.

### ➢ TASK AUTOMATION:

Extend the assistant’s capabilities to perform more tasks, such as setting reminders, creating TO-DO lists,  or interacting with other applications on the user’s device.

### ➢ CHAT GPT INTEGRATION:

As you mentioned, integrating the chat gpt api can provide a more conversational and interactive experience. It can handle a broader range of user queries and generate more creative responses.

### ➢ OFFLINE MODE:

Implement an offline mode or a lightweight version of the assistant to ensure functionality in situations with limited or no internet connectivity.

### ➢ ACCESSIBILITY FEATURES:

Implement accessibility features, such as voice commands for users with limited mobility or incorporating screen reader compatibility for visually impaired users.

## CONCLUSION:

Our project is set to revolutionize the way we interact with our computers. By incorporating natural language processing, the assistant becomes more than just a tool– it becomes a personalized companion in our digital lives.The extension of writing the personal diary,opening applications and greeting the user,enhances its practical utility for users.In simple terms, this project is about making technology a friendly assistant that understands you, helps you, and makes your daily tasks easier.Whether you're visually impaired, have mobility challenges, or simply want a more intuitive way to interact with your computer, the Desktop AI Assistant aims to make your digital experience seamless and personalized.

## 10REFERENCES


www.google.com

www.chat.openai.com

www.wikipedia.org


********** **THANK YOU** **********