Phonics Group Of Institution

Roorkee

SESSION- 2019-2020

Department of Computer Science & Engineering

PROJECT REPORT

ON

VOICE ASSISTANT

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENT FOR THE DEGREE OF BACHELOR OF ENGINEERING (COMPUTER SCIENCE & ENGINEERING)

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CERTIFICATE

This is to certify that we are a bonafied student of Computer Science and Engineering has successfully completed the project work as prescribed by the university in the partial fulfillment of requirement of **Bachelor of Technology** for the academic year 2019-2020 The project work entitled as VOICE ASSISTANT.

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ACKNOWLEDGEMENT

A successful project is the result of team work and coordination that includes not only the grow of developers who put for the ideas, logic and effort but also those who guide them. so at the completion of the project feel obliged to extent many gratitude towards all those who made valuable contribution throughout my training period.

I am thankful for all the knowledge guidance and support emparted by **MR. DEEPAK NEGI** to me who gave me invaluable knowledge in the period. In addition I wish to convey deep sense of gratitude towards **MR. SACHIN CHAUHAN** at any time as needed.

At the end just as significantly, I would like to express my sincere thanks to CSE department and all the other faculty members who have provided me excellent knowledge of guidance throughout my B.Tech(CSE)

PRABIN THARU
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GEETA SHARMA
CELIJA SHARMA

DECLARATION

We are undersign hereby declared that the project report enti**tled Voice Assistant** submitted by me to the university in the partial fulfillment of the requirement for the awarded of degree of bachelor of technology ,under the guidance of **Mr. Deepak Negi** is my original work and the conclusion drawn here is are based on the material collected by myself.

The report submitted is my own work and has not been duplicated from any other work. I shall be responsible for unpleasure movement.

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TOPIC 1: VOICE ASSISTANT

WHAT IS VOICE ASSISTANT?

In general voice assistants react to voice commands and give the user relevant information about his inquiry. Presently voice assistants are already able to process orders of products, answer questions, perform actions like playing music or start a simple phone call with a friend.

The basics of the technology currently exist and the next few years will be used to develop these artificially intelligent assistants even further, enabling them to have more complex capabilities.

The long-term vision for voice assistants is to act as a smart bridge between humans and the vast knowledge and capacities which the internet delivers. Taking away the need to use any device or screen to interact with the internet, technology or other humans in different locations. Soon we'll be able to do it all with our voices only.

SCOPE OF VOICE ASSISTANT

1. Assistant for your home

New voice assistant devices like Amazon's Alexa, Google voice assistant helps in dealing with the daily work of your home. These devices are connected to all other electronic devices and instruct them to do the work on your place. They instantly carry out the functions of the devices. For example if you command a virtual assistant to hear a song of your choice it will let it play. Now phones are also synchronized with the voice assistants now even if you lose your phone you need not search it manually your assistant will help you to find it. Amazon's Alexa has over 2500 amazing skills from a wide range of companies like Ola, Zomato, art of living etc. See amazing offers on CouponsCurry and buy alexa on discounted price at Paytm mall.

2. Voice assistants in hospitality

The voice assistants are taking the hospitality market by storm. From carrying out customer feedback work to analyzing the trends for employee productivity, the voice assistants are providing a favorable experience to hospitality segment.

Few of the functions which are carried out by voice assistants are

• Helps in managing hotels reservations and bookings.

• Works as a personal assistant in the room to the customer

• Carry out Itinerary, see local events, sigh seeing ideas.

• Enable help in housekeeping, room service and other requests

3. Provide financial work solutions

These smart voice assistants also provide a huge help when it comes to handling your banking and finance. They make your work easier and allow tackling the financial matters at ease. The functions performed by virtual voice assistants are:

• Make payments, transfer money as directed

• Give details to you for your savings required for a month.

• Pay your bills on time if directed.

• Provide you the information of best investment plans by comparing others.

• Make a saving plan for retirement.

WHAT CAUSES THE SHIFT TOWARDS VOICE?

The main driver of the shift towards voice user interfaces is the changing user demands. There is an increased overall awareness and a higher level of comfort demonstrated specifically by millennial consumers. In this ever-evolving digital world where speed, efficiency, and convenience are constantly being optimized.

The mass adoption of artificial intelligence in users' everyday lives is also fueling the shift towards voice applications. The number of IoT devices such as smart thermostats, appliances, and speakers are giving voice assistants more utility in a connected user's life. Smart speakers are the number one way we are seeing voice being used, however, it only starts there.

LIMITATIONS

- Voice assistants use single commands. For now, these consist mostly of fixed phrases. Effectively, they push one button or set one dial.
- As more flexible natural language understanding technology is becoming available, interpretations of speech commands may be become ambiguous. With commands resulting into actions, misunderstandings can be risky. Did I really want to set the oven to 600 degrees? Do we need "guard rails"?

- Voice assistants support only one-way “conversations”. The appliances cannot talk back, asking for clarification of intent. Building checks into the skills executed in the cloud does not completely solve this problem.
- The commands are independent of the state of the device. The user has to know whether an oven is on, when the heat should be turned lower, etc.
- The stateless aspect of the voice commands also limits the ability to support action sequences if those actions depend on the state of the device. Have I turned on the exhaust before I turn on a burner on the stove?
- Appliances generally cannot initiate conversations, or give alerts by saying, for instance, that the clothes washer is finished, or that the pot on the stove top is boiling over.
- In many cases, only a subset of the appliance functionality is accessible via voice assistant. This can be due to safety reasons. A stove top burner should be turned on only when somebody is in the kitchen. Or it can be because a function is complex and depends on the state of the appliance, e.g. bring the water to a boil, and cook the pasta until tender.
- Voice assistants cannot integrate context data, such as who is in the kitchen? is there milk in the refrigerator?
- They typically do not remember history — how did we do this the last time?
- They depend on an Internet connection, and the obstacles it has in each home that can make it less than reliable.

WHY PYTHON IS BEST FOR VOICE ASSISTANT?

- **Python has several modules to work on.**
- **API GUI are best in python.**
- **Codings are easy in pythan than other language.**
- **Modules used in voice assistant are found easily in python.**
- **For intern, python is best to design a voice assistant.**

TOPIC 2: INTRODUCTION OF PYTHON

What is Python?

- **Python is a popular programming language. It was created by Guido van Rossum, and released in 1991**

  .

It is used for:

1. **web development (server-side),**
2. **software development,**
3. **mathematics,**
4. **system scripting.**

What can Python do?

- **Python can be used on a server to create web applications.**
- **Python can be used alongside software to create workflows.**
- **Python can connect to database systems. It can also read and modify files.**
- **Python can be used to handle big data and perform complex mathematics.**
- **Python can be used for rapid prototyping, or for production-ready software development**

Why Python?

- **Python works on different platforms (Windows, Mac, Linux, Raspberry Pi, etc).**
- **Python has a simple syntax similar to the English language.**
- **Python has syntax that allows developers to write programs with fewer lines than some other programming languages.**
- **Python runs on an interpreter system, meaning that code can be executed as soon as it is written. This means that prototyping can be very quick.**
- **Python can be treated in a procedural way, an object-orientated way or a functional way.**

A Simple Program to print " Hello World!" in both java and python.

JAVA

```
Public class HelloWorld
{
Public static void main(String args())
{
System.Out.println("Hello World!")
}
}
```

Python

```
print("Hello World!")
```

And here we conclude that python has less lines of code and also has simplicity.

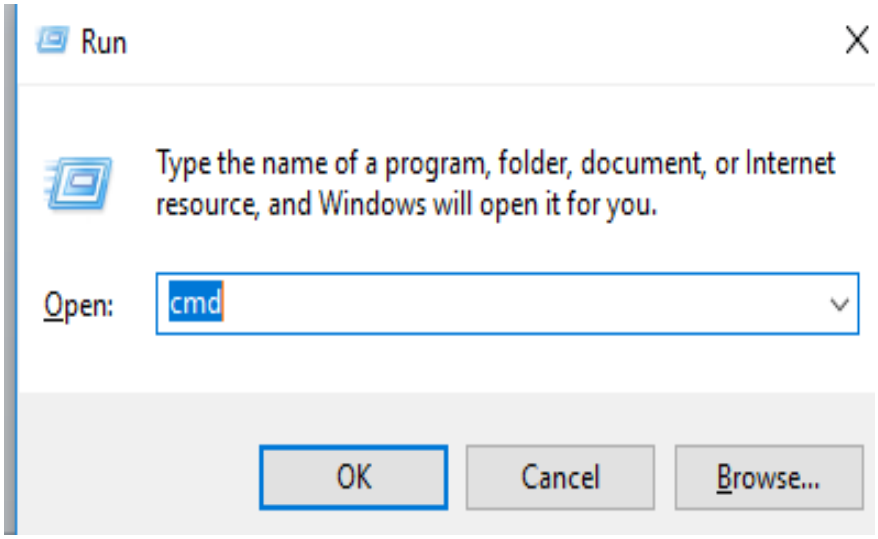
Python Libraries

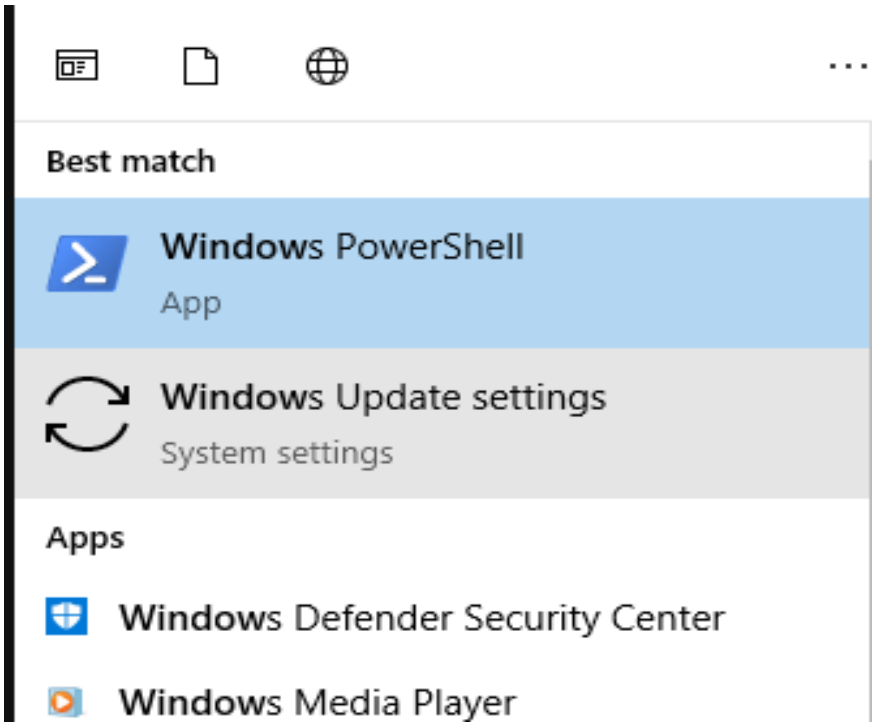
We know that a module is a file with some Python code, and a package is a directory for sub packages and modules. But the line between a package and a **Python library** is quite blurred.

A Python library is a reusable chunk of code that you may want to include in your programs/ projects. Compared to languages like C++ or C, Python libraries do not pertain to any specific context in Python. Here, a 'library' loosely describes a collection of core modules. Essentially, then, a library is a collection of modules. A package is a library that can be installed using a package manager like ruby gems or npm.

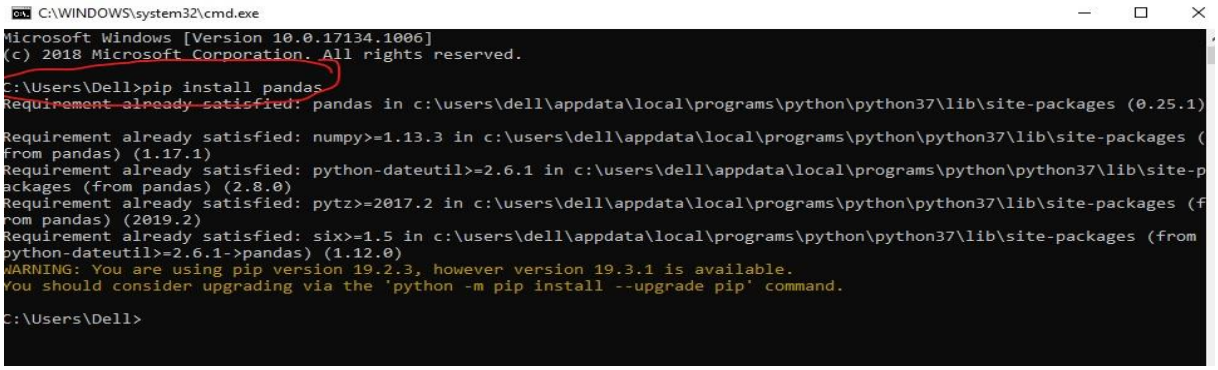
Procedure to Install Python Libraries

1. Open your Terminal and Type cd command or Open your window PowerShell then click





2. Type ‘pip install Libraries name’



TOPICS 3: TOOL USED FOR MAKING THE PROJECT

We have used PyCharm community edition for making my project.

WHAT IS PYCHARM?

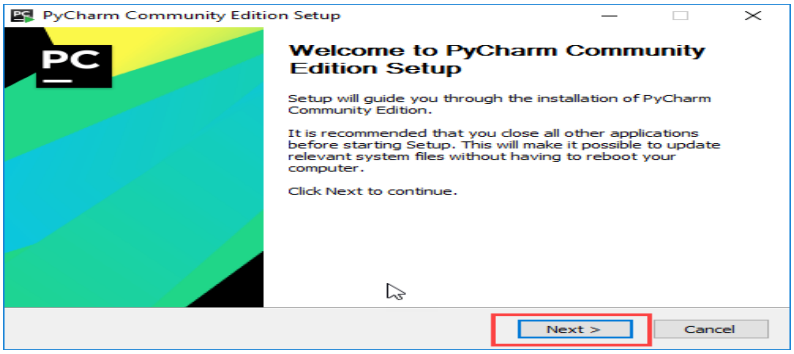
PyCharm is an IDE used in computer programming, specifically for the python language. It is developed by the Czech company JetBrains. It provides code analysis, a graphical debugger, an integrated unit tester, integration with version control system, and supports web development with Django well as Data science with Anoconda.

PyCharm is cross-platform, with window, MacOs and Linux versions. The Community Edition is released under the Apache License, and there is also Professional Edition with extra features – released under a proprietary License.

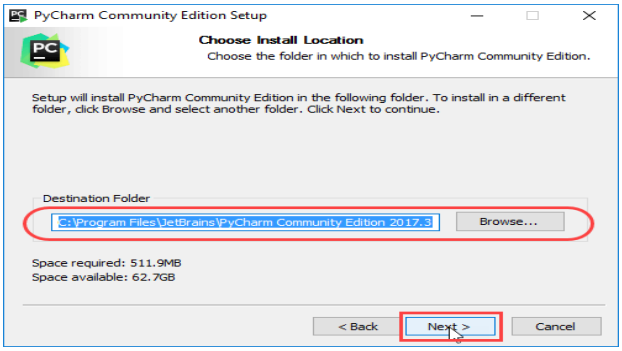
INSTALLATION

- First of all, we downloaded the exe file of community edition of pycharm from the official website. https://www.jetbrains.com/pycharm/

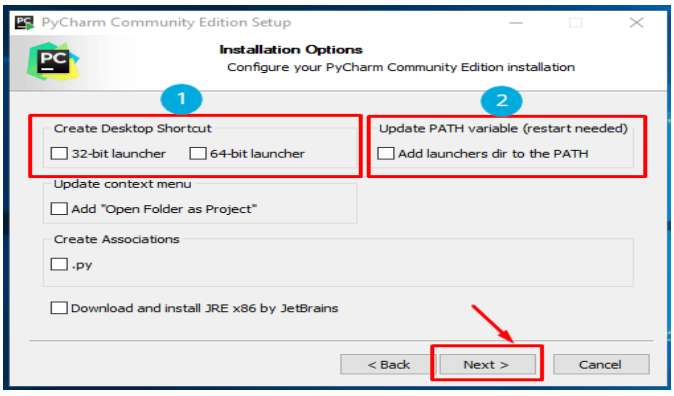
- We then run the .exe file of the pycharm.
- Then click to next button.



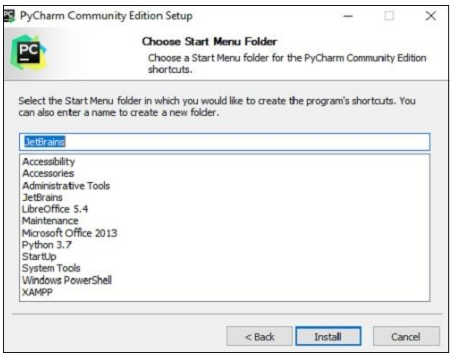
- Then select the path destination for installation.



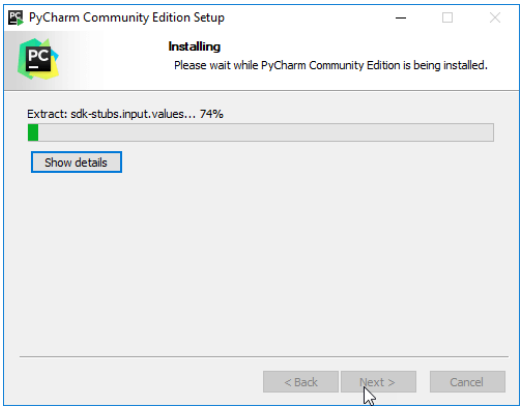
- Then select the bit the launcher and select the .py and also click if you want add launcher dir to the path and click next.



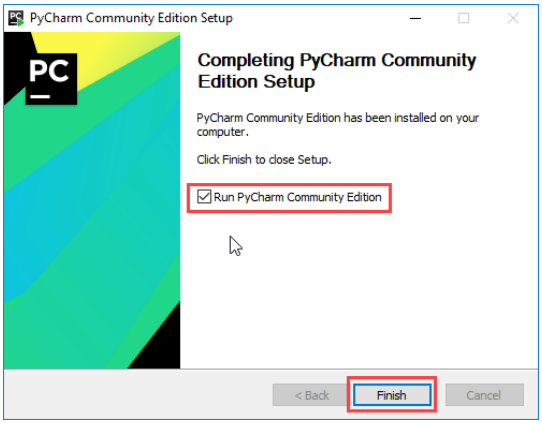
- Choose the start menu folder and keep selected jetbrains and click on install.



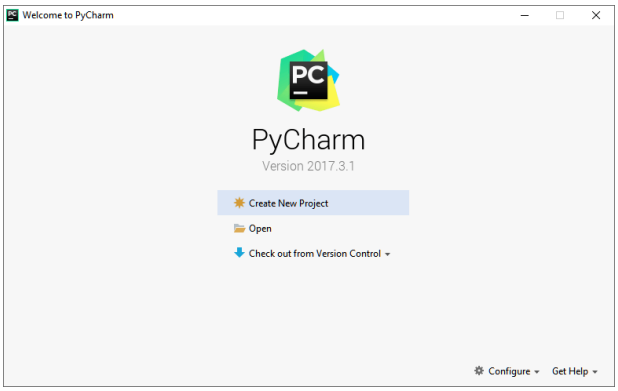
- Wait for the installation to finish.



- Once installation finished, you should receive a message screen that pycharm is installed and if you want to go ahead and run it click the run pycharm community box and click finish.



- After you click on "Finish," the Following screen will appear.



TOPICS 4: MODULES USED IN OUR PROJECT

1. PYTTSX3

`pyttsx3` is a text-to-speech conversion library in Python. Unlike alternative libraries, it works offline, and is compatible with both Python 2 and 3.

INSTALLATION

```
pip install pyttsx3
```

If you receive errors such as `No module named win32com.client`, `No module named win32`, or `No module named win32api`, you will need to additionally install `pypiwin32`.

EXAMPLE

```
import pyttsx3
engine = pyttsx3.init()
engine.say("I will speak this text")
engine.runAndWait()
```

2. SPEECH RECOGNITION

Library for performing speech recognition, with support for several engines and APIs, online and offline.

INSTALLATION

pip install SpeechRecognition

3. PYAUDIO

PyAudio is required if and only if you want to use microphone input (`Microphone`). PyAudio version 0.2.11+ is required, as earlier versions have known memory management bugs when recording from microphones in certain situations.

INSTALLATION

pip install pyaudio

4. WIKIPEDIA

Wikipedia is a Python library that makes it easy to access and parse data from Wikipedia.

INSTALLATION

pip install Wikipedia

EXAMPLE

```
import wikipedia
print wikipedia.summary("Wikipedia")
```

5. WEBBROWSER

We can use web browser in python to access the web.

INSTALLATION

We can simply import the web browser in the PyCharm by using “import”.

6. OS

We can use os for accessing the operating system

INSTALLATION

We can access os by using import os.

7. SMTPLIB

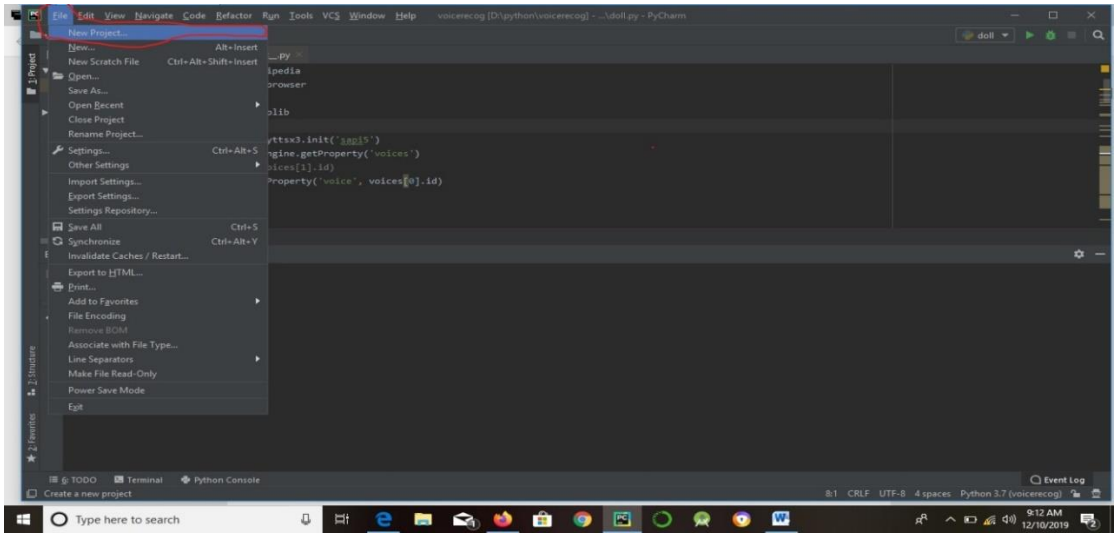
The `smtplib` module defines an SMTP client session object that can be used to send mail to any Internet machine with an SMTP or ESMTP listener daemon.

INSTALLATION

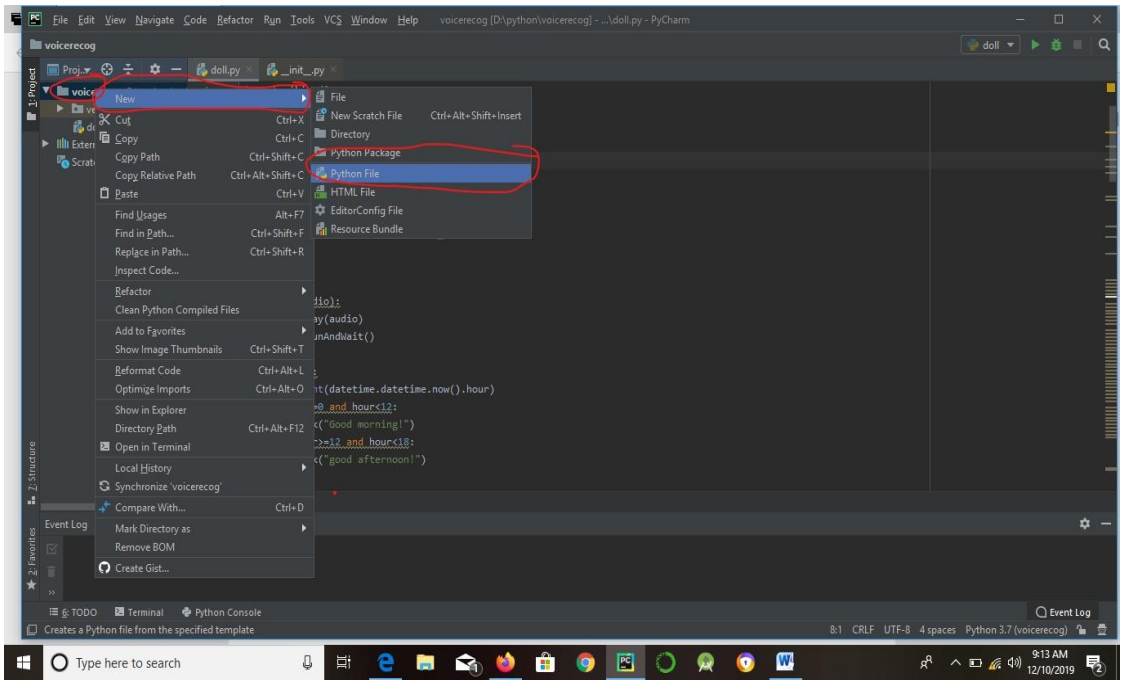
pip install smtplib

TOPIC 5: PROGRAM WE HAVE CODED

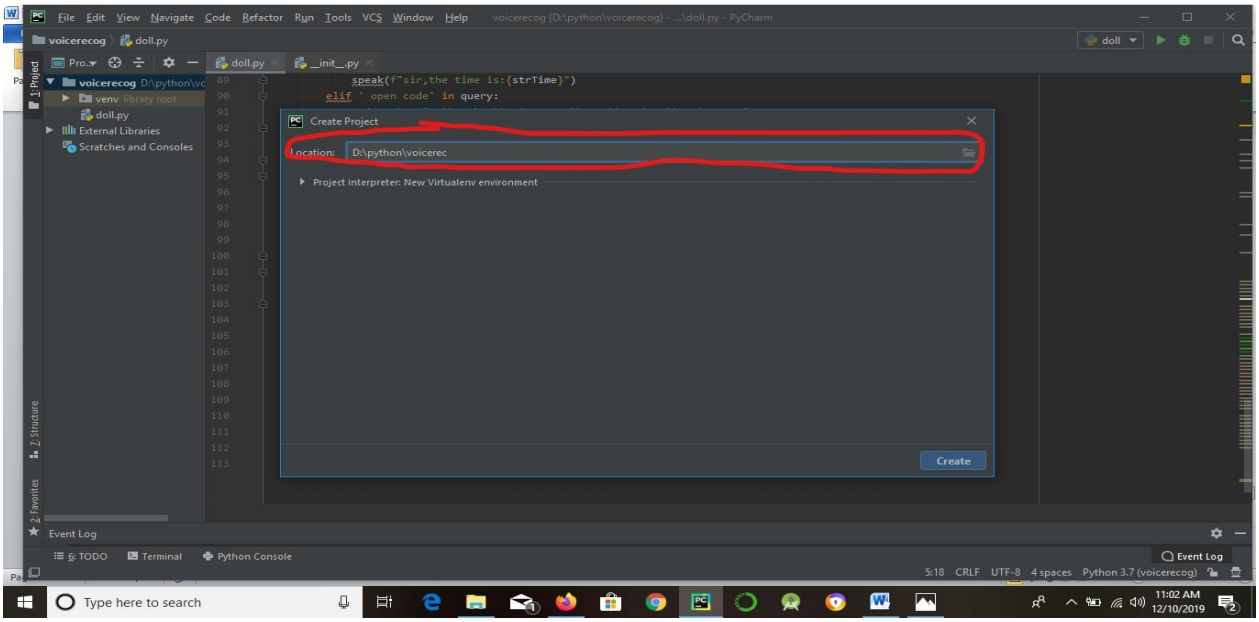
1. Creating New project on Click **File->New Project**



2. Creating New File on Click Right-side **New->Choose Python File**



3. It Creates Python Class that's you choose a location **i.e. Directory name ->location of file->file name**

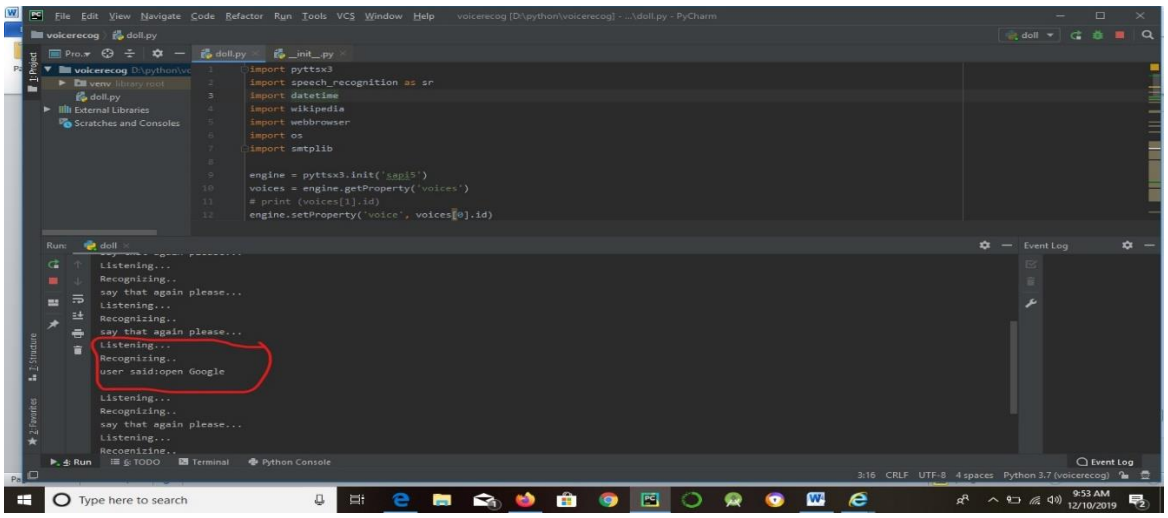


4. First install library module i.e. python programing as to minimize error in coding process. Required modules install successfully then after Class function, modules, method and coding process proceed.

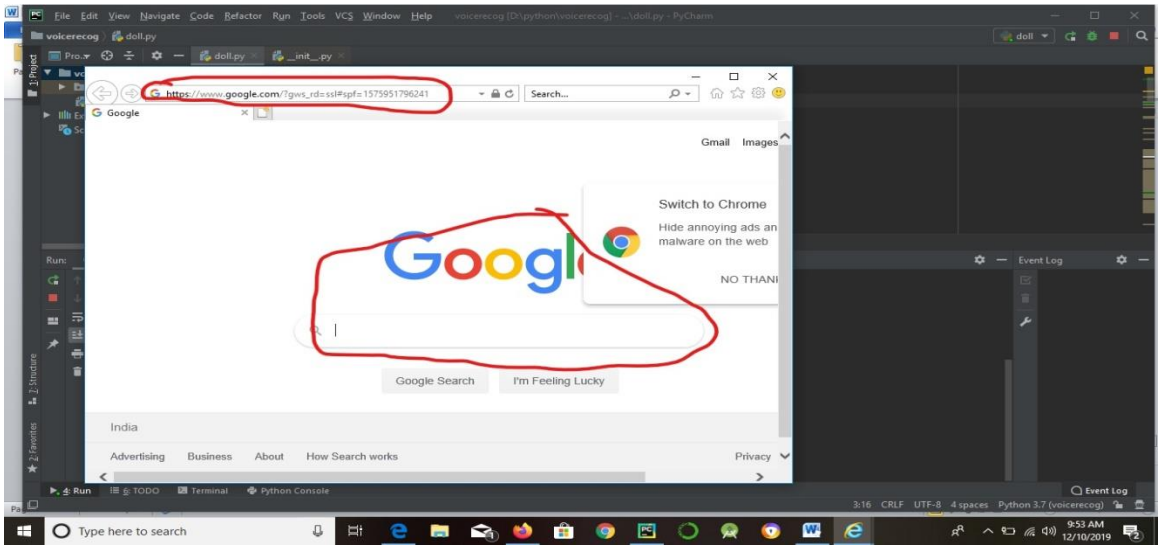
```
import pyttsx3 #pip install pyttsx3
import speech_recognition as sr #pip install speechRecognitio
import datetime
import wikipedia #pip install wikipedia
import webbrowser
import os
import smtplib

engine = pyttsx3.init('sapi5')
voices = engine.getProperty('voices')
# print(voices[1].id)
engine.setProperty('voice', voices[1].id)
```

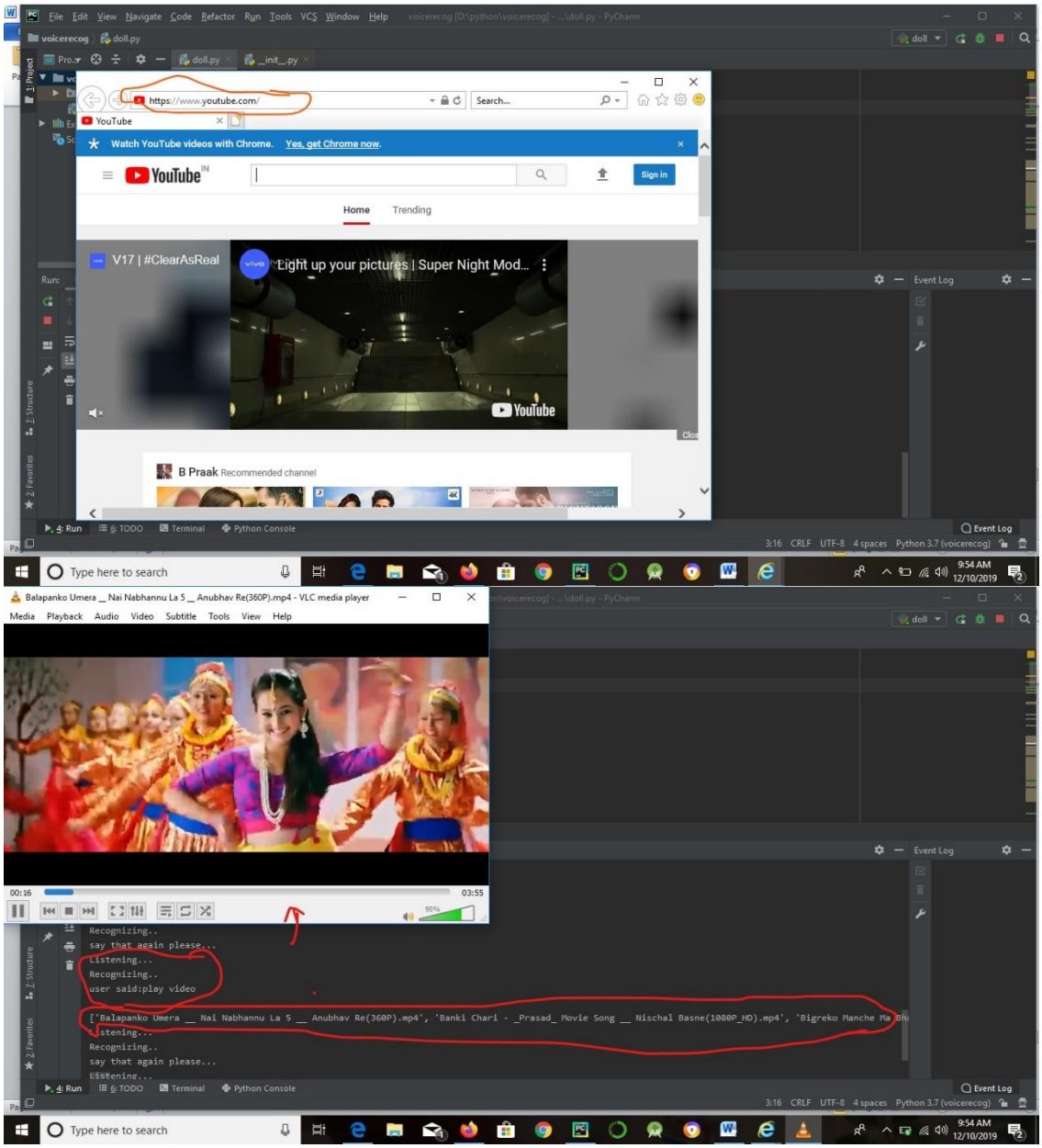
TOPIC 6 : OUTPUT OF THE PROGRAM

1. Program will be executed, firstly it wish something like that **“**Good morning sir ! I am your service voice sir. Please tell me how can I help you”**.**



2. You give some instruction like as “**Open Google” or “Open YouTube” or “Play video”. Then it will be executed and give the output.**

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Watch YouTube videos with Chrome. Yes, get Chrome now.
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V17 | #ClearAsReal
Light up your pictures | Super Night Mod...
B Praak Recommended channel
Balapanko Umera __ Nai Nabhannu La 5 __ Anubhav Re(360P).mp4 - VLC media player
Media Playback Audio Video Subtitle Tools View Help
00:16
03:55
Recognizing..
say that again please...
Listening...
Recognizing..
user said:play video
['Balapanko Umera __ Nai Nabhannu La 5 __ Anubhav Re(360P).mp4', 'Banki Chari - _Prasad_ Movie Song __ Nischal Basne(1080P_HD).mp4', 'Bigreko Manche Ma
Listening...
Recognizing..
say that again please...
Listening...
Type here to search
9:54 AM
12/10/2019

SUMMARY

I honestly want to say that while programming these codes of the voice assistant, I have learnt a lot about the implementation of the modules and the libraries. I have learnt about the execution process and the main functions and also learnt about these use of module.

We have safely coded the programs and also faced many issues during the execution time. Some of the execution error was occurred during the pyAudio installation while we were importing the module pyAudio.

But basically, I want to thank my group mates who were there helping me out theses errors to make a program which will assist us.