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# Personal Assistance A.I.

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***Abstract***

*In this project, the Python program acts as personal assistance which can understand what user is saying and act accordingly.*

***Keywords:*** *Artificial Intelligence, Python, personal assistant, operating system, PyCharm, packages, syntax and semantics*

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## INTRODUCTION

In the cutting-edge period of PCs, we are moving towards the future where we can make machines or programming that can do work just like people. We are making machines that can work like any ordinary individual with the goal that remaining task should be less on us and help in our everyday work and that too at our directions. Today people are making robots and a few softwares to keep running on existing machines to do the everyday work and make the life of people all the more simple and profitable. The quick development of this plan to have machines or programming like people brings forth the innovation known as "Artificial intelligence".

## ARTIFICIAL INTELLIGENCE

"Artificial intelligence (AI)", sometimes called machine intelligence, is intelligence demonstrated by machines, in contrast to the "natural intelligence" displayed by humans and other animals. In computer science, AI research is defined as the study of "intelligent agents", i.e., any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals [1]. Colloquially, the term "artificial intelligence" is applied when a machine mimics "cognitive" functions that humans associate with other human minds, such as "learning" and "problem solving" [2].

### Python

"Python is an interpreted high-level programming language for general purpose programming. Created by Guido van Rossum and first released in 1991, Python has a design philosophy that emphasizes code readability, notably using significant whitespace. It provides constructs that enable clear programming on both small and large scales [2]".

### Personal Assistant

A personal assistant likewise alluded to as personal aid (PA) or personal secretary (PS), is an occupation title depicting a person who helps a particular individual with their business or individual tasks. Assistants (As) frequently go about as the administrator's first purpose of contact with individuals from both inside and outside the association. This implies their errands and abilities can frequently be partitioned into two fields of specialized aptitudes and individual aptitudes.

### Operating System

An operating system (OS) is framework programming that oversees PC equipment and programming assets and gives basic administrations to PC programs. The most used operating system in the world is Microsoft's windows as it is very user friendly and can easily be understood by any individual. Due to this its market share is around 82.7%.

### PyCharm

PyCharm is an Integrated development environment (IDE) used in computer programming, specifically for the Python language. It is developed by the Czech company JetBrains [3].

  

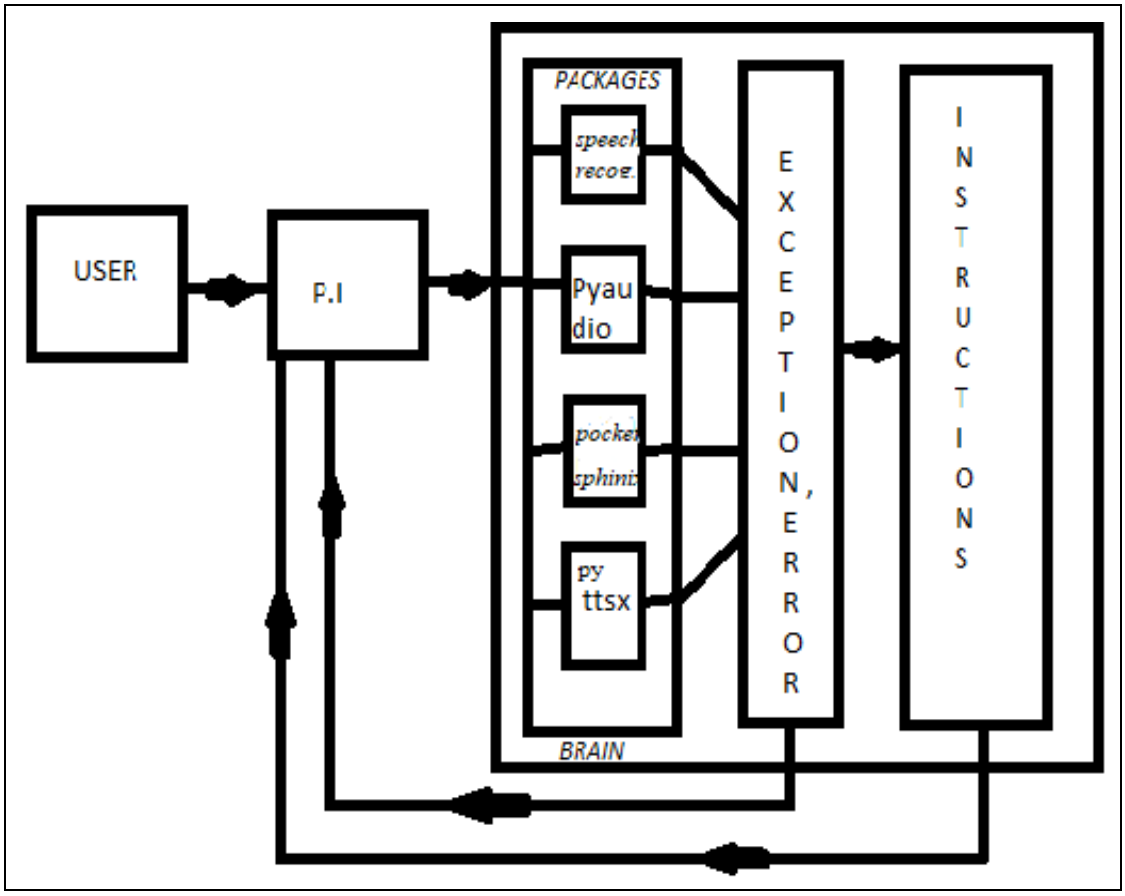


***Fig. 1:*** *Packages.*

**Packages**
These are the prewritten codes that are available in the Python for further use (Figure 1).

**Pyttsx3**
Pyttsx for Python (Offline text to speech for python3)
Pyttsx is a decent content to discourse transformation library in Python.

**Speech_Recognition**
Speech recognition is a critical element in a few applications utilized, for example, home mechanization, computerized reasoning, and so forth. This is valuable as it very well may be utilized on microcontrollers, for example, Raspberry Pi with the assistance of an outside mouthpiece.

**PocketSphinx**
PocketSphinx is a lightweight discourse acknowledgment motor, particularly tuned for handheld and cell phones, however it works similarly well on the desktop.

**PyAudio**
PyAudio gives Python ties to PortAudio v19, the cross-stage sound I/O library. With PyAudio, you can without much of a stretch utilize Python to play and record sound streams on an assortment of stages (e.g., GNU/Linux, Microsoft Windows, and Mac OS X).

**Syntax and Semantics**
Python is intended to be an effectively comprehensible dialect. Its organizing is outwardly uncluttered, and it regularly utilizes English watchwords where different dialects utilize accentuation. In contrast to numerous different dialects, it does not utilize wavy sections to delimit squares, and semicolons after articulations are discretionary. It has less syntactic exemptions and unique cases than C or Pascal.

**Indentation**
Python utilizes whitespace space, as opposed to wavy sections or catchphrases, to delimit squares. An expansion in space comes after specific articulations; a lessening in space

means the finish of the current block. Thus, the program's visual structure precisely speaks to the program's semantic structure.

## BRIEF DESCRIPTION

### About This Project

In this venture, we make the program that can impersonate people and go about as an individual right hand for the client, utilizing work area (especially Windows). The essential work of this undertaking is to recognize what the client is stating and pursue the directions as needs are. These days, a considerable measure of computerized reasoning project is being produced and, in each area, we see its development sought after and improvement. Our undertaking can open the program and hunt about anything client needs to by simply tuning in to the client's voice and furthermore ready to play out a few assignments like playing tunes, shutting programs, bolting yours Windows working framework, tell your area in wording as longitude and latitudes and so on.

### Motivation

Our world is developing with the speed faster than light, every minute, some new technology and smart gadgets are launched for the people to use and to make their life easy. The most famous technology nowadays is artificial intelligence, from home gadgets to the television to your phone everything is using artificial intelligence in one way or another. The most famous work of the AI is the personal assistance program that can help people in day to day life with their work. The most used function of the AI is the auto spell check program that almost everyone uses on daily bases. After that comes the personal assistance program. This program helps us to manage our electronic items easily. First company that managed to implement the AI as personal assistance is the Apple in its iPhone named SIRI; this was an instant hit among the people because they could do a lot of work in their phones with just their voice command. Then came the google assistance and now we see the market flooded with AI personal assistants like Amazon Alexa, Google home etc. But these personal assistances are only available for the iOS and the Android platform and not for the desktop which is still used in every field like business, science etc. One reason is that it is very complicated to create it for the desktop; this is the reason why we are selecting this challenge as our project. Personal assistance not only saves your time but also saves the human effort to make their lives easy and also this feels like the futuristic technology. We are using Python for the development of this project and the reason is because Python is supported by the tech. giant Google and also it is compatible for handling the AI tasks easily.

### Why Python?

- Popular in artificial intelligence
- One of the best compatibilities with machine learning.
- Provides google packages support.
- Every personal computer operating system supports Python.
- Easy to learn new things and implement them.

### Future Scope

It is a well-known fact that AI is the future and this sort of close to home help will be intensely in administration in future in light of their flawless work and less expenses when contrasted with human help. This kind of help can even be adjusted to do work for a few different professionals, if there should be an occurrence of specialists, it can oversee understanding records, and even help patients in their sickness when genuine specialist is not accessible, subsequently sparing life sometimes.

Likewise, it adheres to the guidance with no enquiry which is something we as a whole need from our representative/help. Not just that it will make the lives less demanding and more practical.

### Need of Personal Assistance AI

Personal assistance plays a crucial role in one’s life. Suppose a situation where you are busy doing important work and you want to search something while doing your work then you can use personal assistance and it will do the searching job for you. In the conditions like where somehow user has thousands of songs and need to play anyone, then all user needs to do is tell personal assistant the name of the song and its done. As we know that all

of us are spending very busy life and we have several tasks in hand at one particular time and also sometimes at the time of eating food we need to know the time or play a song or search something on personal computers then personal assistant can help you. Just think how much it can help the future generation when it will be developed more for various industries, whenever there is a shortage of man power it can help by doing some work enabling the manpower to be used in some place good.

**Objective**

The core objective of the project is:

1. **Converses:** It is going to be able to reply the user and also greets the user whenever user uses word hello/hey etc. greeting words to the personal assistance.
2. **Play Music:** It can to play music just by user's command.
3. **Open YouTube:** It can open and close the world's most popular video platform.
4. **Open web browser:** If user needs to use internet then it can open web browser for the same.
5. **Current Time:** If user is doing some work and needs to know the time then it can tell the current time without interfering in user work.
6. **Shut Down pc:** It is even powerful enough to shut down the computer with user's command.
7. **Close Application:** Any application that is running on the screen can be closed.
8. **Current Position:** It is even powerful enough to tell you your location in terms for longitude and latitude.
9. **Talk Casually:** User can ask the program "How are you" and program will reply like a real person.
10. **Open Facebook:** It can open and close the most popular social media i.e. Facebook.
11. **Search Data:** It can search for anything that is available on the internet according to the user.
12. **Shut down Itself:** It can even terminate itself if user wants to.

**Terminologies: Abstract Base Class, Engine**

**Abstract Base Class**

Abstract base classes complement duck-typing by providing a way to define interfaces when other techniques like hassattr() would be clumsy or subtly wrong (for example with magic methods). ABCs introduce virtual subclasses, which are classes that do not inherit from a class but are still recognized by isinstance() and issubclass(). Python comes with many built-in ABCs for data structures (in the collections.abc module), numbers (in the numbers module), streams (in the io module), import finders and loaders (in the importlib.abc module). You can create your own ABCs with the abc module [4].

**Engine**

Engine is only a robotized type of a "shop counter person". You approach him for an item. He demonstrates that item, as well as the related ones which you could purchase. In this way, does our proposal engine.

**Data Flow Diagram**

Data flow diagram is given in Figure 2.

**Software Development Life Cycle**

**Spiral Model**

We are using the spiral model as it suits our project perfectly. First, we do is planning in which we decided what to do next or what feature to add. Then after this, the risk analysis is considered like whether it will or will not affect the code that is already coded and what might go wrong by doing some particular thing. After that, we designed the program and its structures, then after, finishing; thus we evaluate the final product and perform testing on that particular module and then we again plan for the next feature and so on until it is completely done (Figure 3).

Spiral model can cost a lot when it comes to big projects, but in our case since all the work is done by us only, the cost factor did not affect in this case.

## CONCLUSION

As we know researches on AI system have vastly increased since the last decade. Everyday new AI model/prototype has been introduced by the people around the globe. By following the same flow, this project comes into play. This project is only one of its kinds since various features of different categories will be installed. We have seen that these types of system are dedicated to a specific task, but this system also functions other tasks too.

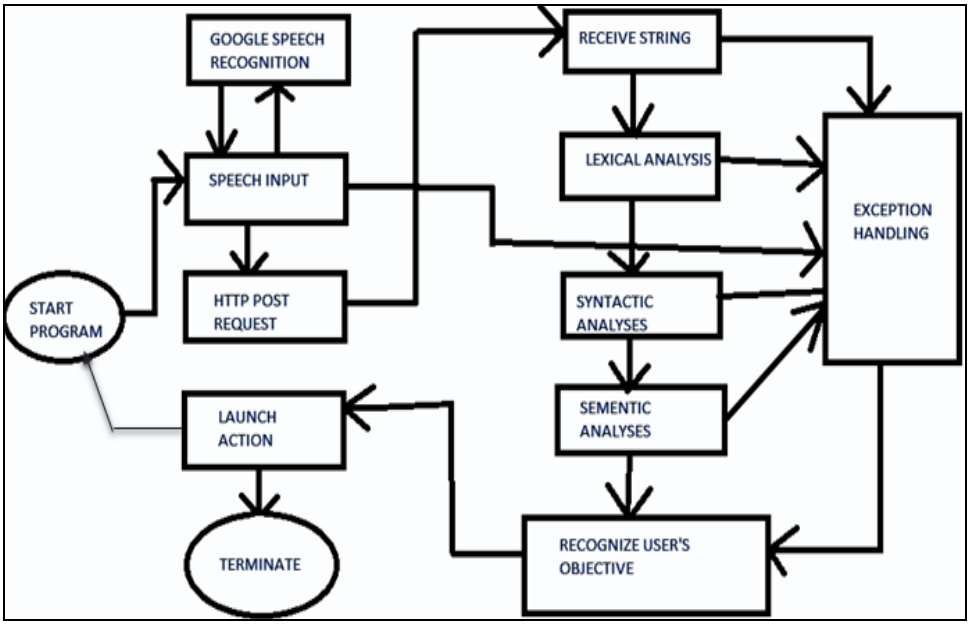


***Fig. 2:*** *Data Flow Diagram.*

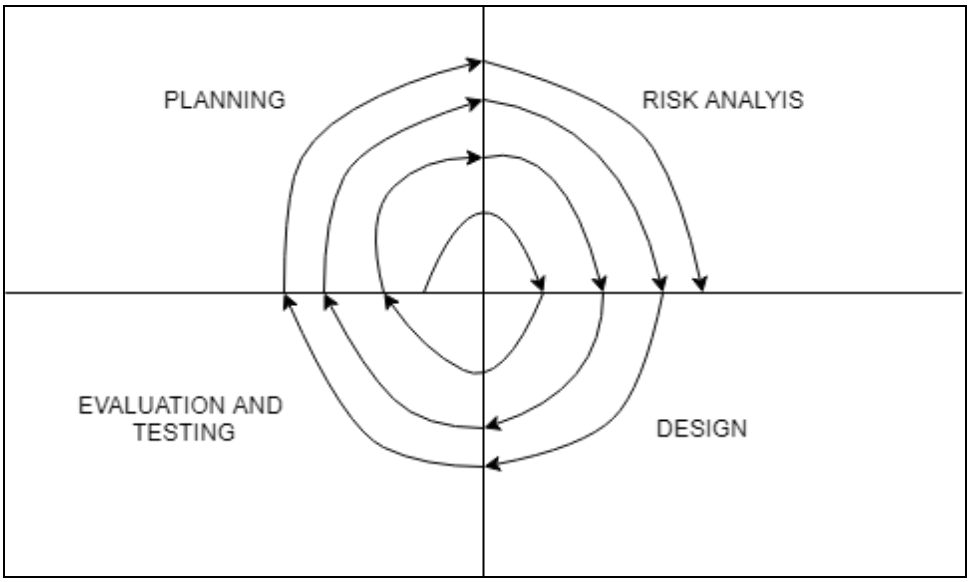


***Fig. 3:*** *Software Development Life Cycle.*

Below are some tasks on which this system shall function:

- Chat-bot.
- Queries from search engine over providing answers to user about his/her in the internet.
- Personal assistant.

Above are the main features on which this system will function. So basically, this project will act as the real personal assistant for the personal computers. There are several projects like this available, like Microsoft's Cortana but they are not well developed and our project can perform several tasks like mentioned above very easily and can be used at any personal computer which supports Python.

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