IT351 HUMAN COMPUTER INTERACTION

Assignment – 5 : Personalized Voice Assistant

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Objective:

To use MIT App Inventor to build an effective and useful voice assistant.

Introduction:

A voice assistant is a digital assistant that uses voice recognition, speech synthesis, and natural language processing (NLP) to provide a service through a particular application. Many devices we use every day utilize voice assistants. They're on our smartphones and inside smart speakers in our homes. Many mobile apps and operating systems use them. Additionally, certain technology in cars, as well as in retail, education, healthcare, and telecommunications environments, can be operated by voices. 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.

Instructions to Run:

Download the Voice_Assistant_181IT117.apk file on any Android device and install it. Provide the necessary permissions like Permission to record Audio, Permission to read storage, etc. The application will be installed and will be ready for use.

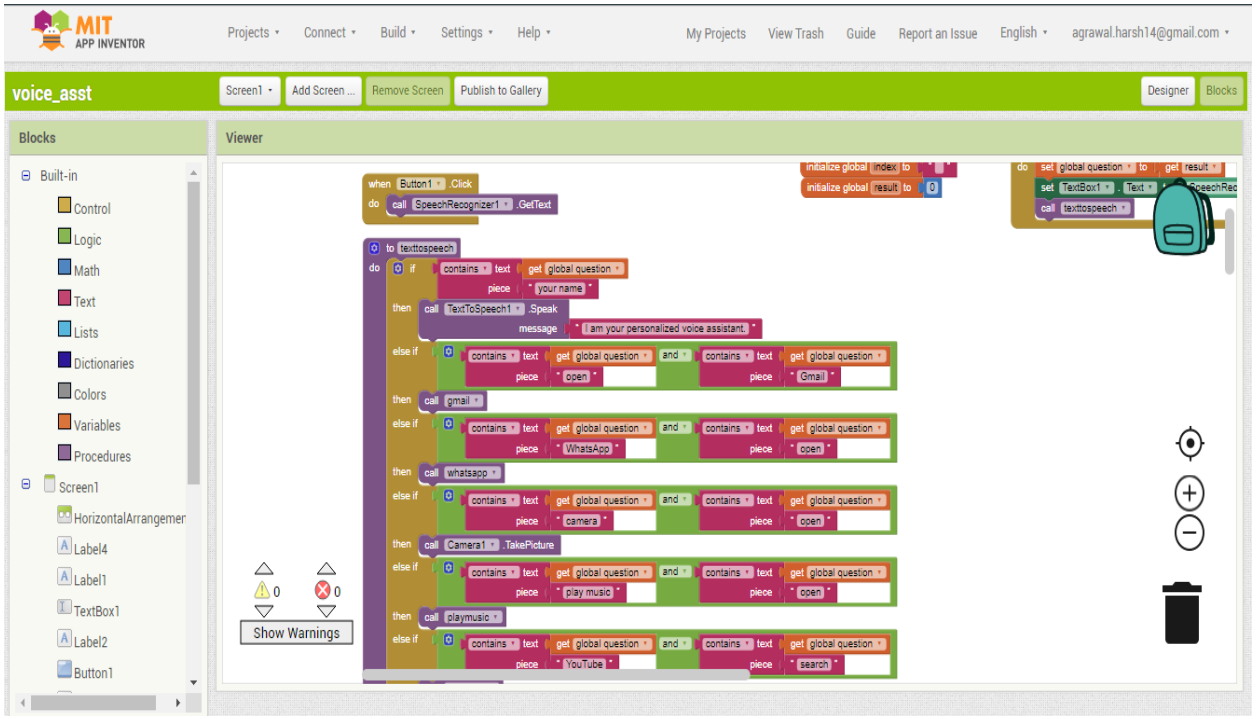
Methodology:

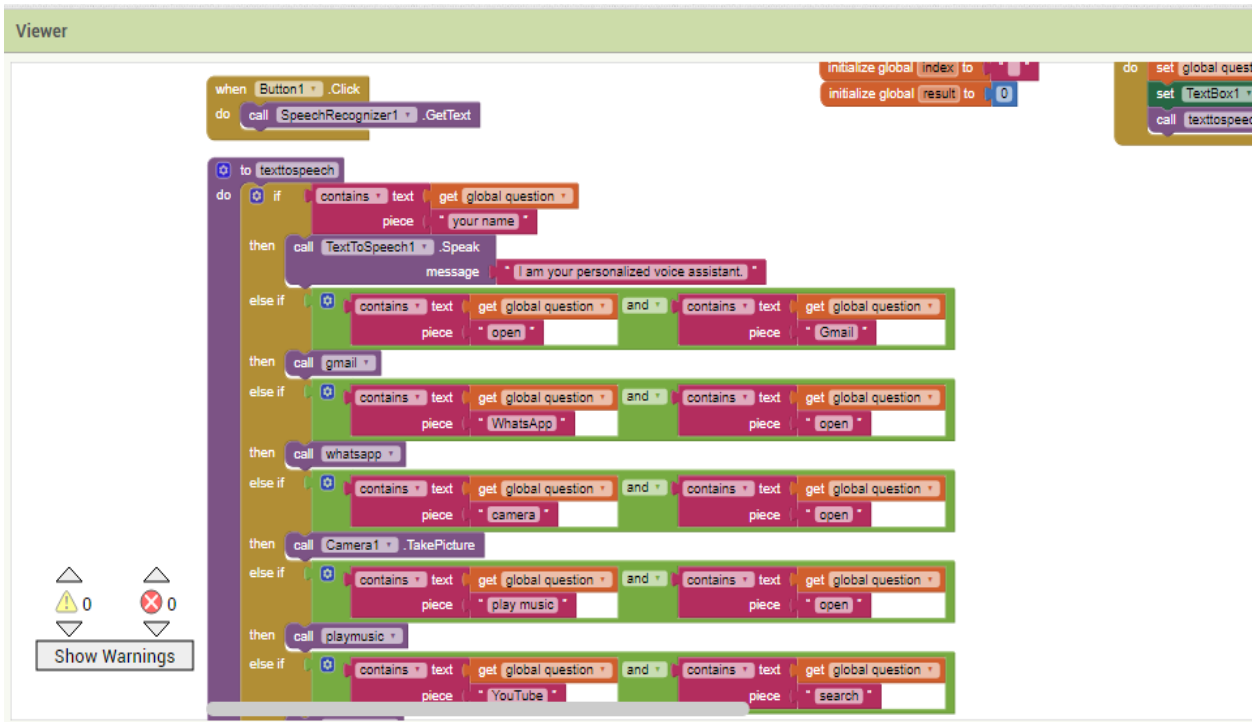
The user has to press the mic button and a dialog box of google speech will appear. The user has to say the command and depending on what the command is, the app will perform the necessary actions. For example, the command “Search NITK Surathkal on Youtube” will open the Youtube app if present on the phone and search for the channel of NITK Surathkal, otherwise it will say “Youtube is not installed in this device”. Similar actions are performed for other commands as well.

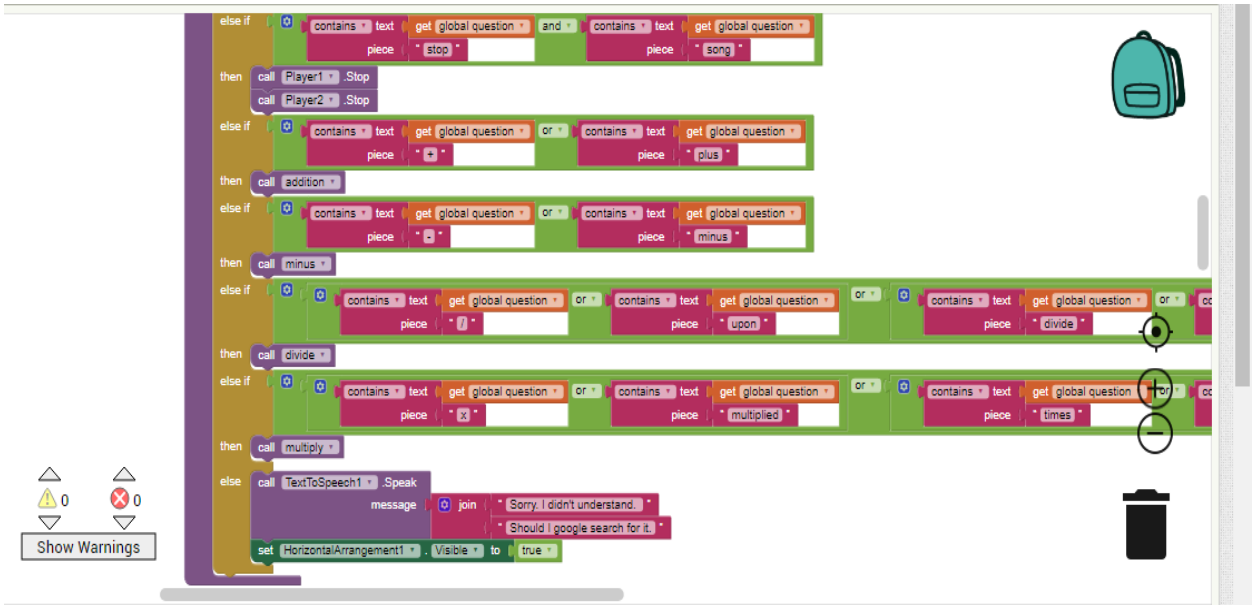
The app also “speaks” to the user and informs the user what the command is doing so that the user can get some feedback whether what they intended is being done or not. The user is also informed whether the app is currently listening for commands as well.

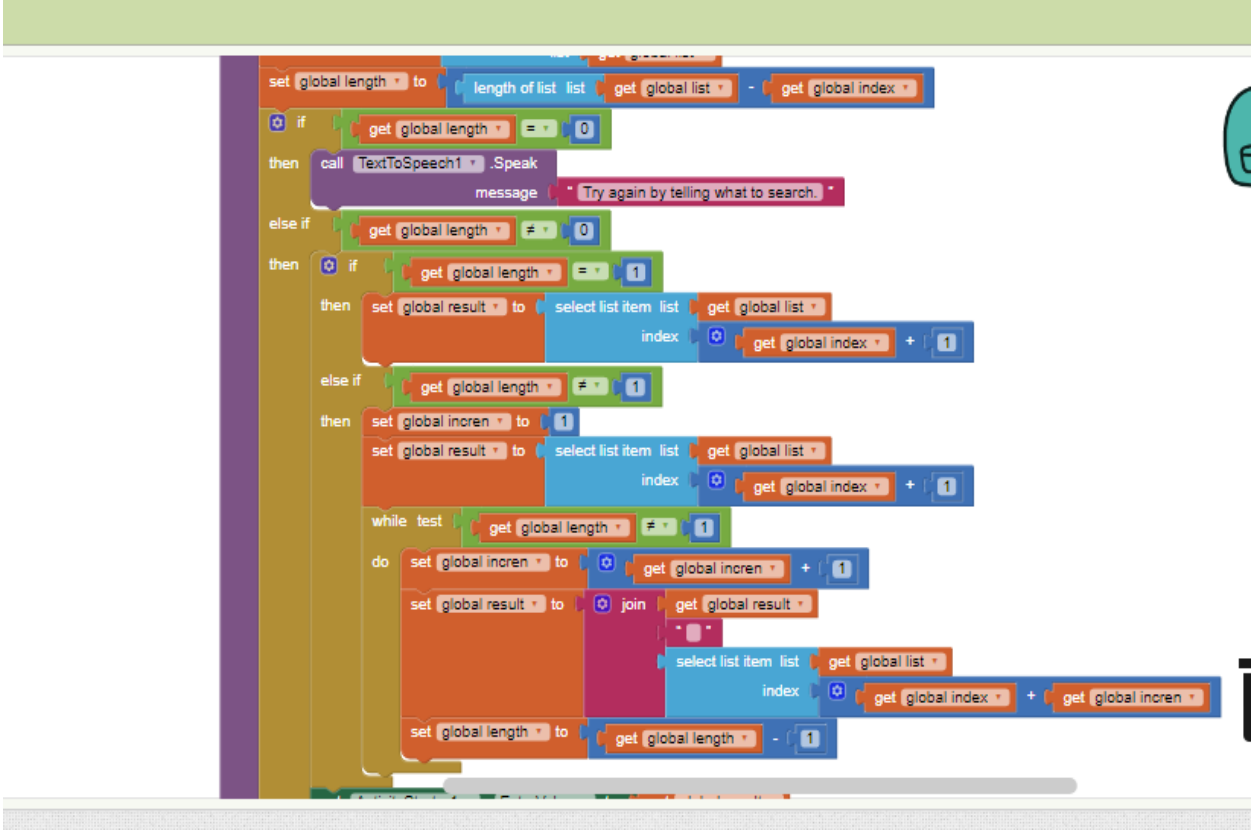
If in any case the app doesn’t recognize the command, it will ask the user whether he/she wants to search that on Google and user will be provided a choice with two buttons of Yes and No. He can select the suitable choice and proceed. If the selection is Yes, the query will be searched on Google and the Results will be displayed.

Screenshots of the App logic in MIT App Inventor Console:




Viewer
when Button1 .Click
do call SpeechRecognizer1 .GetText
initialize global index to
initialize global result to 0
to texttospeech
do if contains text get global question piece " your name "
then call TextToSpeech1 .Speak message " I am your personalized voice assistant. "
else if contains text get global question piece " open " and contains text get global question piece " Gmail "
then call gmail
else if contains text get global question piece " WhatsApp " and contains text get global question piece " open "
then call whatsapp
else if contains text get global question piece " camera " and contains text get global question piece " open "
then call Camera1 .TakePicture
else if contains text get global question piece " play music " and contains text get global question piece " open "
then call playmusic
else if contains text get global question piece " YouTube " and contains text get global question piece " search "
0
0
Show Warnings


else if contains text get global question piece " stop " and contains text get global question piece " song "
then call Player1 .Stop
call Player2 .Stop
else if contains text get global question piece " + " or contains text get global question piece " plus "
then call addition
else if contains text get global question piece " - " or contains text get global question piece " minus "
then call minus
else if contains text get global question piece " / " or contains text get global question piece " upon " or contains text get global question piece " divide "
then call divide
else if contains text get global question piece " x " or contains text get global question piece " multiplied " or contains text get global question piece " times "
then call multiply
else call TextToSpeech1 .Speak message join " Sorry. I didn't understand. " " Should I google search for it. "
set HorizontalArrangement1 . Visible to true
0
0
Show Warnings



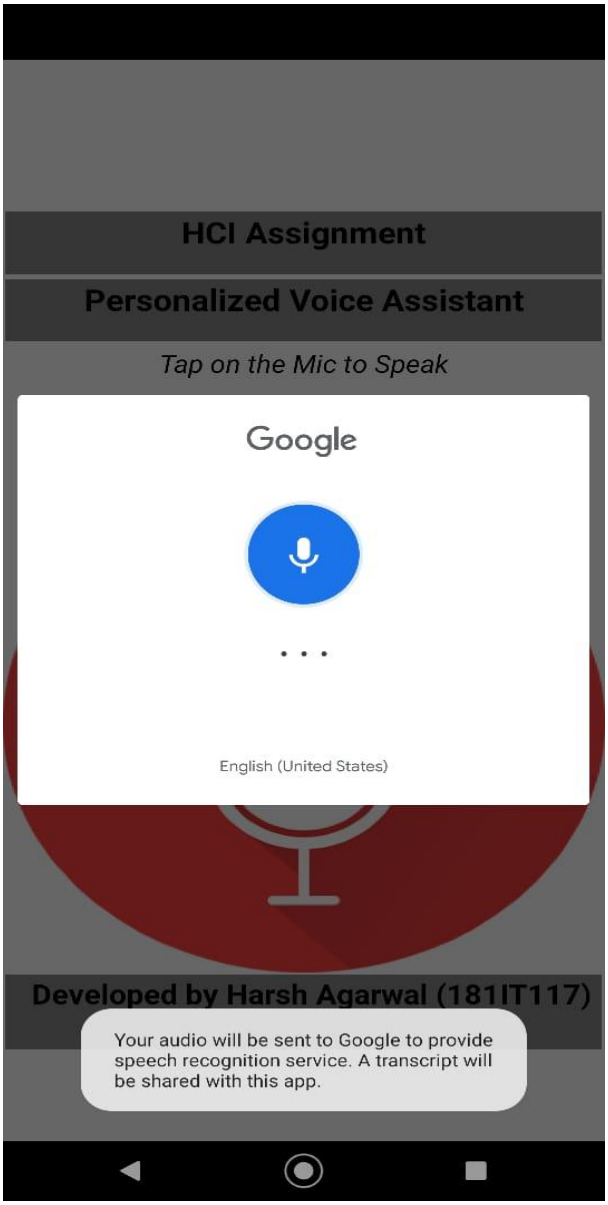
Features Implemented:

1) Greetings
2) Name
3) Call a number/contact
4) Open Camera
5) Open Youtube/ Search on Youtube
6) Play a song from Local Storage
7) Play a Song from Google Play Music
8) Open Google Maps/ Search on Google Maps
9) Open Whatsapp
10) Open Gmail
11) Open Facebook
12) Open Instagram
13) Additions: Using “Add”, “plus” commands
14) Subtractions: Using “minus”, “subtract” commands
15) Multiplications: Using “multiply”, “into” commands
16) Divisions: Using “divide”, “by”, “upon” commands
17) Google Search if command not found

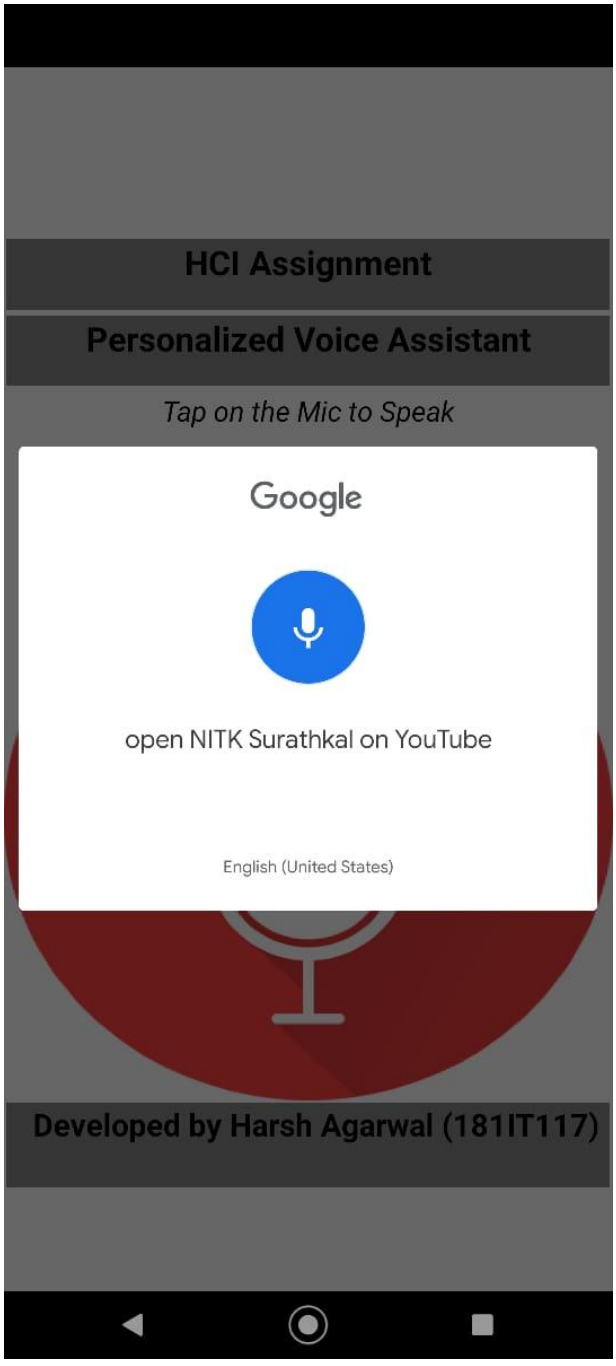
Results:

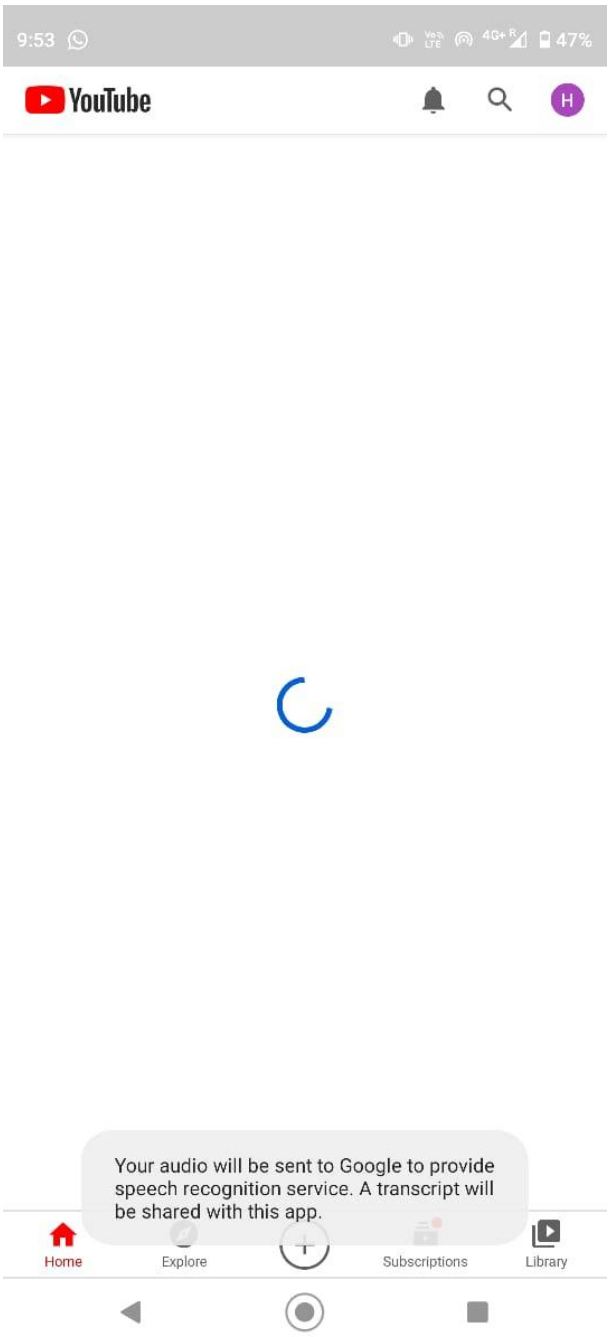
Some of the screenshots of the Android Application:

1) Clicking on the Microphone icon will open up the Google Speech recognition Dialog Box.

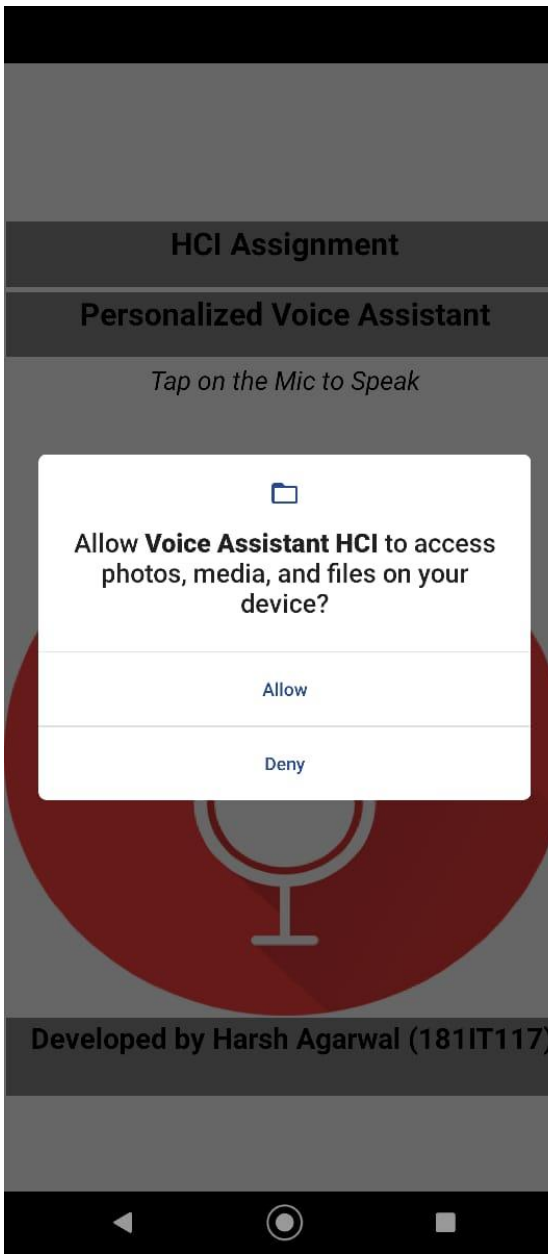


2) Using the Youtube Search Option:

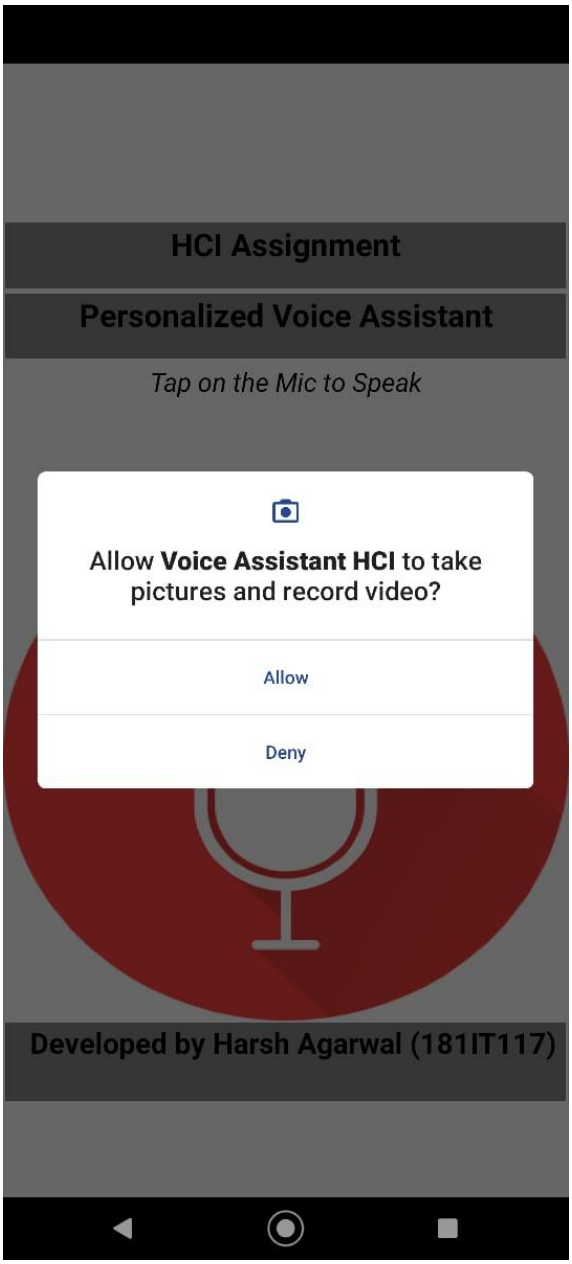


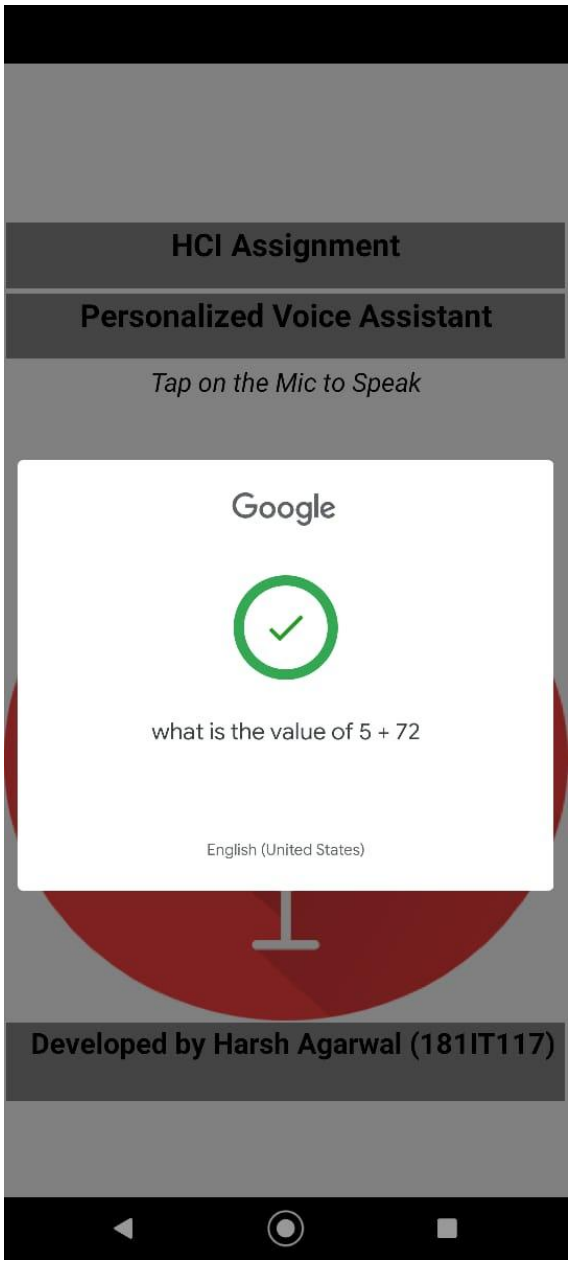


3) Playing a song from Local Storage

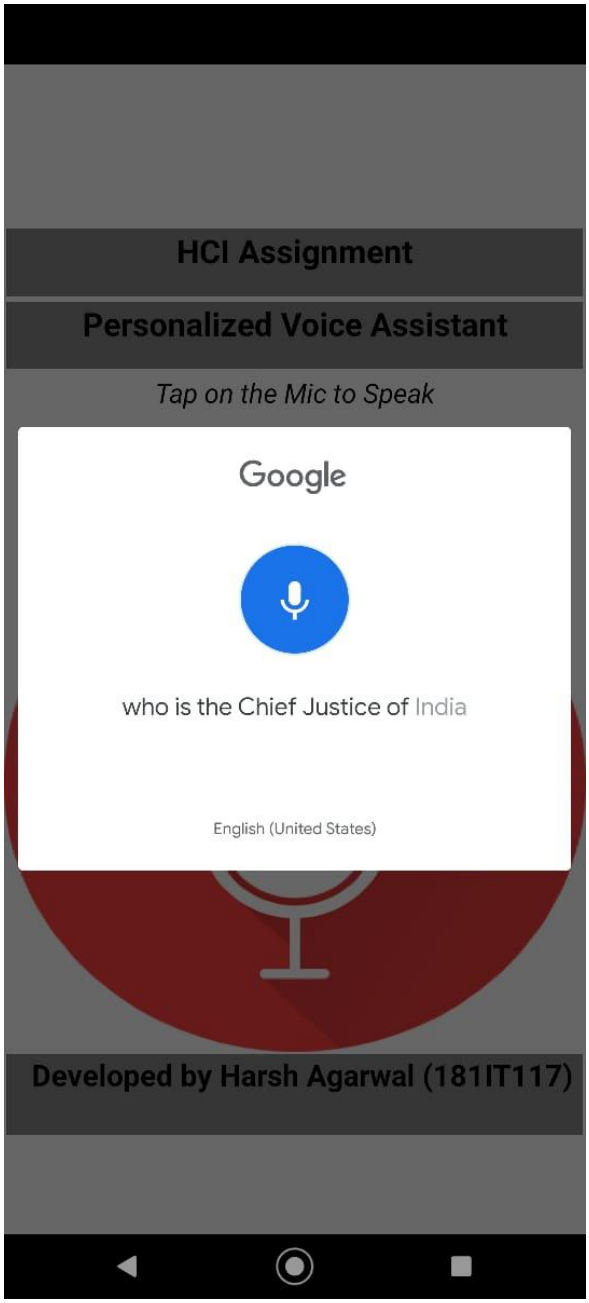


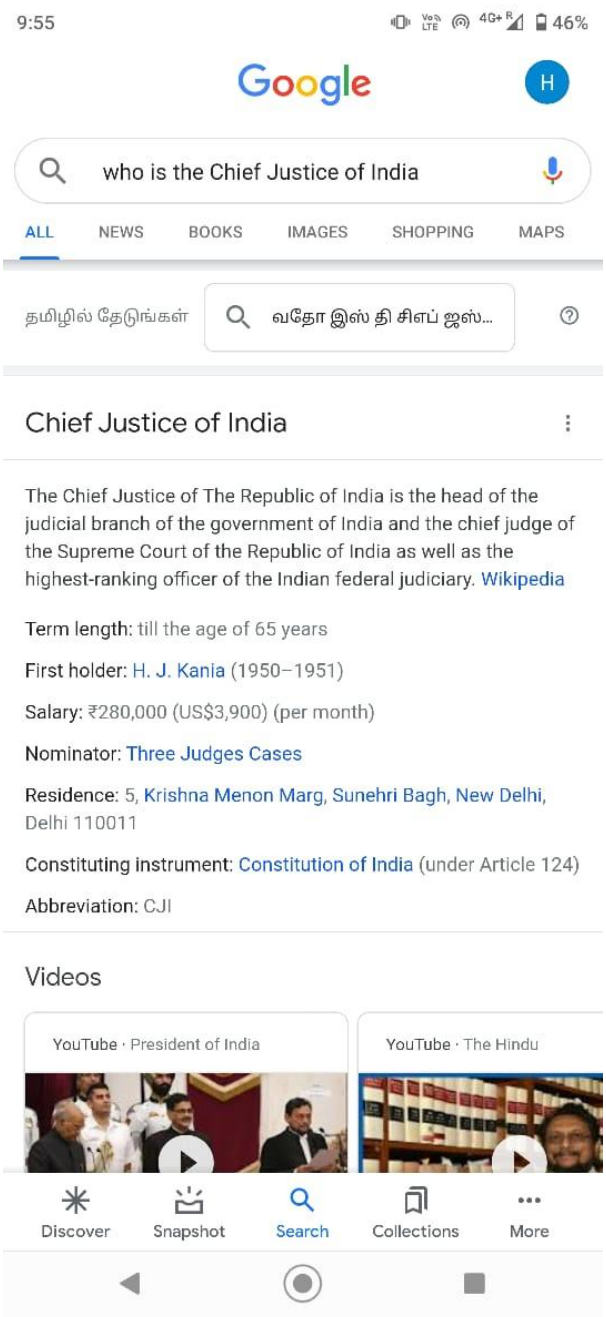
4) Opening the Camera
5) Performing Mathematical Calculations (Addition)





6) If command is not identified, it will be searched on Google.





NOTE: Above mentioned screenshots only depict some of the functions of the app. All the functions mentioned in the Features Section have been successfully implemented in the app. The app can be installed using the APK file.