ICP – 11 Text to Speech

Team details:

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Github link: https://github.com/sarath98-lab/spring-2022/tree/main/Mobile/ICP11/src/ICP11/ICP11

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Github link: https://github.com/SaiKicks/WebMobile-Spring2022/tree/main/mobile/ICP11

Description:

Current ICP helps in understanding Text to Speech functionality in Android application.

Implementation:

- An android application is created by choosing the Empty activity. The application provides an xml and a java file which are manipulated to fetch required results.

  'activity_main.xml' file:

- A TextView, an EditText, and a Button is created.
- In the TextView, the title of the application is added.

```xml
<TextView
    android:id="@+id/textViewTTS"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Text to speech"
    android:textSize="35dp"
    android:textColor="#FF0020"
    android:layout_centerHorizontal="true"
    tools:ignore="MissingConstraints"/>
```

- The EditText is for the user to enter the text which is to be transformed into speech. With the EditText a hint is added indicating user to enter the text.

```xml
<EditText
    android:id="@+id/editTextTTS"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:hint="Enter Your Text"
    android:layout_below="@+id/textViewTTS"
    android:layout_centerHorizontal="true"
    tools:ignore="MissingConstraints"
    android:textSize="35dp"
    />
```
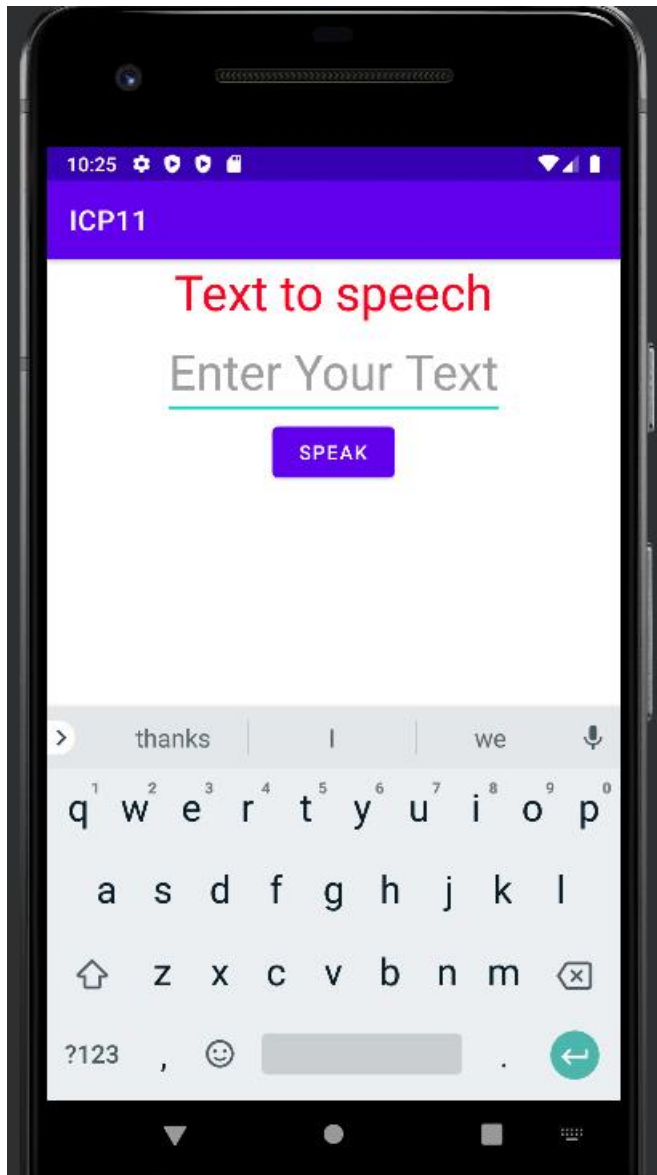
- The button is for submitting the text. Button click serves as the indication for the application to convert the text into speech. A title is added on the button.

```xml
<Button
    android:id="@+id/btnTTS"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/editTextTTS"
    android:text="speak"
    android:layout_centerHorizontal="true"
    tools:ignore="MissingConstraints"
    />
```

- Output:

'mainActivity.java' file:

- Firstly, the variables are created for TextView, EditText, and button. The variables are initiated by the id from the activity_main.xml.
- TextToSpeech object is created to chieve the required functionality.
- An Initialization method called init is created for the object.
- A validation is done on the input obtained.

```java
        @Override
        public void onClick(View view) {
            tts = new TextToSpeech( context: MainActivity.this, new TextToSpeech.OnInitListener() {
                @Override
                public void onInit(int status) {
                    if(status == TextToSpeech.SUCCESS) {
                        int result = tts.setLanguage(Locale.US);
                        if(result == TextToSpeech.LANG_NOT_SUPPORTED || result == TextToSpeech.LANG_MISSING_DATA)
                        {
                            Log.e( tag: "message", msg: "Language is not supported");
                        }
                        else {
                            //tts.speak("Text to Speech", TextToSpeech.QUEUE_ADD, null);
                            speak();
                        }
                    }
                    else{
                        Log.e( tag: "message", msg: "TTS is not supported");
                    }
                }
            });
        }
    });
}
```

- Then the validation is performed for language. And the error message is displayed for the else case.
- Speak method is created for converting text to speech. The text is obtained from the EditText.

```java
void speak()
{
    String text = editText.getText().toString();
    tts.setSpeechRate(0.5f);
    tts.speak(text,TextToSpeech.QUEUE_ADD, params: null);
}
```

- OnPause method is defined with stop() function. Which is used to discard the required text.
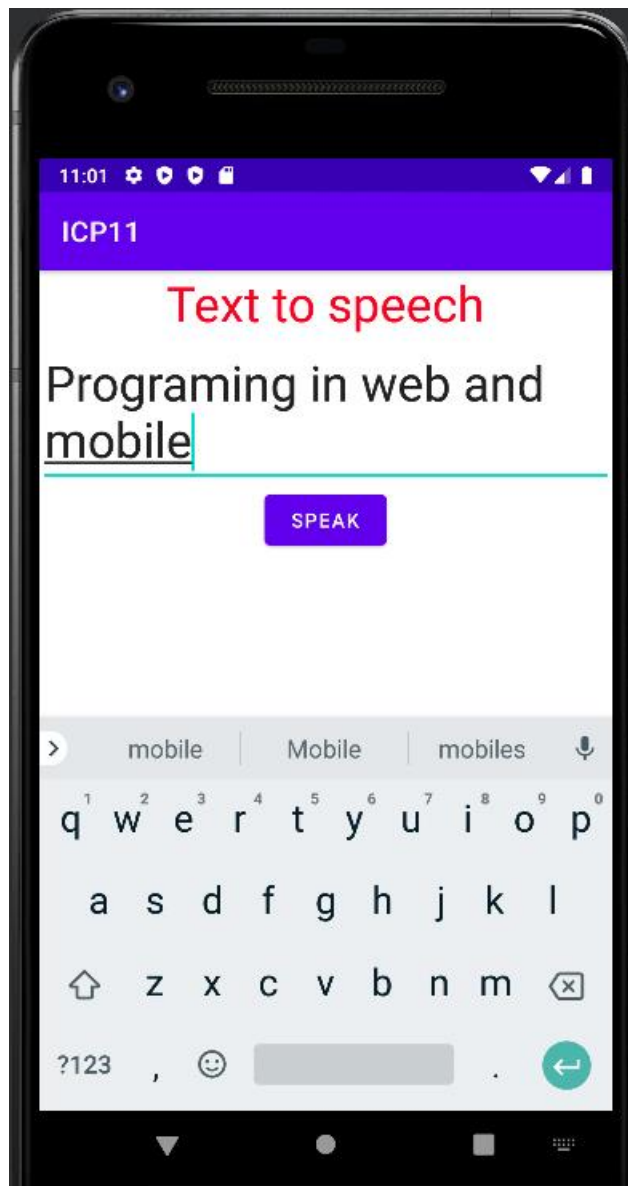
```java
@Override
protected void onPause(){
    super.onPause();
    tts.stop();
}
```

- OnDestroy method is defined with ShutDown() function.

```
    @Override
    protected void onDestroy(){
        super.onDestroy();
        tts.stop();
        tts.shutdown();
    }
}
```

Output:

Learning from the lesson:

In this ICP we understood how text to speech works. It also laid foundation in understanding speech to text.

Contribution:

Equal contribution.