## Assignment 6

Speech to Text and Text to Speech including with SQLite connection

Main Activity:

**public class** MainActivity **extends** AppCompatActivity {  
  
 **private** TextToSpeech **tts**;   
 **private** DBHelper **mydb** ;  
  
 **private** TextView **mVoiceInputTv**;  
 **private** ImageButton **mSpeakBtn**;  
  
 **private** SharedPreferences **preferences**;  
 **private** SharedPreferences.Editor **editor**;  
 String **NAME** = **"name"**;  
  
 **private** Speaker **speaker**;  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **tts** = **new** TextToSpeech(**this**, **new** TextToSpeech.OnInitListener() {  
 @Override  
 **public void** onInit(**int** status) {  
 **if** (status == TextToSpeech.***SUCCESS***) {  
 *// Change this to match your  
 // locale* **tts**.setLanguage(Locale.***US***);  
 **tts**.speak(**"hello"**, TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 }  
 }  
 });  
  
 **preferences** = getApplicationContext().getSharedPreferences(**"pref"**, getApplicationContext().***MODE\_PRIVATE***);  
 **editor** = **preferences**.edit();  
  
 **mVoiceInputTv** = (TextView) findViewById(R.id.***voiceInput***);  
 **mSpeakBtn** = (ImageButton) findViewById(R.id.***btnSpeak***);  
 **mSpeakBtn**.setOnClickListener(**new** View.OnClickListener() {  
  
 @Override  
 **public void** onClick(View v) {  
 startVoiceInput();  
 }  
 });  
  
 **mydb** = **new** DBHelper(**this**);  
  
 }  
  
  
 **private void** checkTTS() {  
 Intent check = **new** Intent();  
 check.setAction(TextToSpeech.Engine.***ACTION\_CHECK\_TTS\_DATA***);  
 startActivityForResult(check, **CHECK\_CODE**);  
 }  
  
 **private void** startVoiceInput() {  
 Intent intent = **new** Intent(RecognizerIntent.***ACTION\_RECOGNIZE\_SPEECH***);  
 intent.putExtra(RecognizerIntent.***EXTRA\_LANGUAGE\_MODEL***, RecognizerIntent.***LANGUAGE\_MODEL\_FREE\_FORM***);  
 intent.putExtra(RecognizerIntent.***EXTRA\_LANGUAGE***, Locale.*getDefault*());  
 intent.putExtra(RecognizerIntent.***EXTRA\_PROMPT***, **"Hello, How can I help you?"**);  
 **try** {  
 startActivityForResult(intent, ***REQ\_CODE\_SPEECH\_INPUT***);  
  
 } **catch** (ActivityNotFoundException a) {  
  
 }  
 }  
  
 @Override  
 **protected void** onActivityResult(**int** requestCode, **int** resultCode, Intent data) {  
 **super**.onActivityResult(requestCode, resultCode, data);  
  
 **switch** (requestCode) {  
 **case *REQ\_CODE\_SPEECH\_INPUT***: {  
 **if** (resultCode == ***RESULT\_OK*** && **null** != data) {  
 ArrayList<String> result = data.getStringArrayListExtra(RecognizerIntent.***EXTRA\_RESULTS***);  
  
 **if**(**mydb**.insertSpeech(result.get(0)))  
 {  
 Toast.*makeText*(getApplicationContext(), **"text stored "**, Toast.***LENGTH\_SHORT***).show();  
 }  
 **else** {  
 Toast.*makeText*(getApplicationContext(), **"text not stored"**, Toast.***LENGTH\_SHORT***).show();  
 }  
  
 **if** (result.get(0).equalsIgnoreCase(**"Hello"**)) {  
 **mVoiceInputTv**.setText(**"Hello, What is your name?"**);  
 **tts**.speak(**"Hello, What is your name?"**,TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 } **else if** (result.get(0).equalsIgnoreCase(**"what is your name"**)) {  
  
 **mVoiceInputTv**.setText(**"My name is Siri. How can I help you?"**);  
 **tts**.speak(**"My name is Siri. How can I help you?"**,TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 }  
  
 **else if** (result.get(0).contains(**"name is"**)) {  
 String name = result.get(0).split(**"is"**)[1];  
 **editor**.putString(**NAME**, name).apply();  
 **mVoiceInputTv**.setText(**"Hello "** + **preferences**.getString(**NAME**, **"name"**) + **". I am your personal assistant"**);  
 **tts**.speak(**"Hello "** + **preferences**.getString(**NAME**, **"name"**) + **". I am your personal assistant"**,TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 } **else if** (result.get(0).contains(**"thank you"**)) {  
 **mVoiceInputTv**.setText(**"Thank you too "** + **preferences**.getString(**NAME**, **"name"**));  
 **tts**.speak(**"Thank you too "** + **preferences**.getString(**NAME**, **"name"**),TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 } **else if** (result.get(0).contains(**"what"**) && result.get(0).contains(**"time"**)) {  
 SimpleDateFormat sdfDate = **new** SimpleDateFormat(**"HH:mm"**);  
 Date date = **new** Date();  
 String[] strDate = sdfDate.format(date).split(**":"**);  
 **if** (strDate[1].contains(**"00"**))  
 strDate[1] = **"o'clock"**;  
 **mVoiceInputTv**.setText(**"The time is:"** + sdfDate.format(date));  
 **tts**.speak(**"The time is:"** + sdfDate.format(date),TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 } **else if**(result.get(0).equalsIgnoreCase(**"Get all speech"**)) {  
 List<String> speechList = **new** ArrayList<String>();  
 speechList = **mydb**.getAllSpeech();  
 StringBuilder builder = **new** StringBuilder();  
 **for**(String str: speechList){  
 builder.append(str).append(**","**);  
 }  
 **mVoiceInputTv**.setText(builder.toString());  
 **tts**.speak(builder.toString(),TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 }**else** {  
 **mVoiceInputTv**.setText(**"Sorry could not recognise."**);  
 **tts**.speak(**"Sorry could not recognise."**,TextToSpeech.***QUEUE\_FLUSH***, **null**);  
 }  
 **break**;  
 }  
  
 }  
 }  
 }  
}

DBhelper

**public class** DBHelpe **extends** SQLiteOpenHelper {  
  
 **public static final** String ***DATABASE\_NAME*** = **"MyDBNam.db"**;  
  
 **public static final** String ***CONTACTS\_TABLE\_NAME*** = **"speech"**;  
  
 **public static final** String ***SPEECH\_COLUMN\_ID*** = **"speechText"**;  
  
 **private** HashMap **hp**;  
  
 **public** DBHelpe(Context context)  
 {**super**(context, ***DATABASE\_NAME***, **null**, 1);}  
 @Override  
 **public void** onCreate(SQLiteDatabase db)  
 {  
 *//* ***TODO Auto-generated method stub*** db.execSQL(**"create table speech "** +**"(id integer primary key, speechText text)"** );  
  
 }  
  
 @Override  
 **public void** onUpgrade(SQLiteDatabase db, **int** oldVersion, **int** newVersion)  
 {  
  
 *//* ***TODO Auto-generated method stub*** db.execSQL(**"DROP TABLE IF EXISTS contacts"**);  
  
 onCreate(db);  
  
 }  
  
 **public boolean** insertSpeech (String speechText)  
 {  
 SQLiteDatabase db = **this**.getWritableDatabase();  
 ContentValues contentValues = **new** ContentValues();  
 contentValues.put(**"speechText"**, speechText);  
 db.insert(**"speech"**, **null**, contentValues);  
 **return true**;  
 }  
  
 **public** Cursor getData(**int** id)  
 {  
 SQLiteDatabase db = **this**.getReadableDatabase();Cursor res = db.rawQuery( **"select \* from speech where id="**+id+**""**, **null** );  
 **return** res;  
 }  
  
 **public int** numberOfRows()  
 {  
  
 SQLiteDatabase db = **this**.getReadableDatabase();  
 **int** numRows = (**int**) DatabaseUtils.*queryNumEntries*(db, ***CONTACTS\_TABLE\_NAME***);  
  
 **return** numRows;  
  
 }  
  
 **public** ArrayList getAllSpeech()  
  
 {  
 ArrayList array\_list = **new** ArrayList();  
  
 *//hp = new HashMap();* SQLiteDatabase db = **this**.getReadableDatabase();  
  
 Cursor res = db.rawQuery( **"select \* from speech"**, **null** );  
  
 res.moveToFirst();  
  
 **while**(res.isAfterLast() == **false**){  
  
  
  
 array\_list.add(res.getString(res.getColumnIndex(***SPEECH\_COLUMN\_ID***)));  
  
 res.moveToNext();  
  
 }  
  
 **return** array\_list;  
  
 }  
  
 }

layout xml:

<**RelativeLayout** >  
  
 <**ScrollView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="match\_parent"  
 android:layout\_above="@+id/btnSpeakContainer"  
 android:layout\_alignParentTop="true"  
 android:layout\_marginBottom="20dp"  
 android:padding="20dp"**>  
  
 <**TextView  
 android:id="@+id/voiceInput"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:forceHasOverlappingRendering="true"  
 android:textAppearance="@style/TextAppearance.AppCompat.Medium"** />  
 </**ScrollView**>  
  
 <**LinearLayout  
 android:id="@+id/btnSpeakContainer"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentBottom="true"  
 android:background="#f5f5f5"  
 android:gravity="center\_horizontal"  
 android:orientation="vertical"  
 android:padding="20dp"**>  
  
 <**ImageButton  
 android:id="@+id/btnSpeak"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:background="@null"  
 android:padding="16dp"  
 android:scaleType="fitCenter"  
 android:src="@mipmap/ic\_microphone\_2"** />  
  
 <**TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/btnSpeak"  
 android:layout\_margin="10dp"  
 android:text="@string/hint"** />  
 </**LinearLayout**>  
</**RelativeLayout**>