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Mobile Application Development

Lab6 Manual

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Lab6

**Activity 1: Create a game MadLibs.**

"Mad Libs" are short stories that have blanks called placeholders to be filled in. In the non-computerized

version of this game, one person asks a second person to fill in each of the placeholders without the

second person knowing the overall story. Once all placeholders are filled in, the second person is shown

the resulting silly story.

Write an Android app that reads in a Mad Lib from a text file in a specific format. The text file represents

placeholders as tokens that start and end with < > brackets, like <adjective> or <proper-noun>. Your app

reads the file, looks for any such placeholders, and prompts the user to replace them with specific

words. Once the user has typed in replacements for all placeholders, the completed story is shown on

the screen. The screenshots below indicate a possible flow of the UI for such an app. Our flow has three

activities: An initial "welcome" screen explaining the app, then a screen that repeatedly prompts the

user to fill in placeholders, then a third activity to display the completed story. Of course you don't need

to exactly match our sample's UI, but it may give you ideas.

MainActitity.java

package com.example.android.activity1;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.telephony.SmsManager;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import java.io.File;  
import java.io.FilenameFilter;  
import java.io.IOException;  
import java.io.InputStream;  
  
public class MainActivity extends AppCompatActivity {  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
 Button btn\_start = (Button) findViewById(R.id.btn\_start);  
  
 btn\_start.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 startGame();  
 }  
 });  
 }  
  
 public void startGame()  
 {  
 Intent intent = new Intent(this,EnterWordsActivity.class);  
 startActivity(intent);  
 }  
  
}

EnterWordsActicity.java

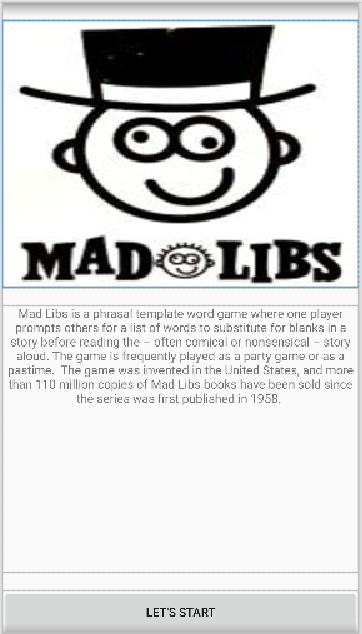
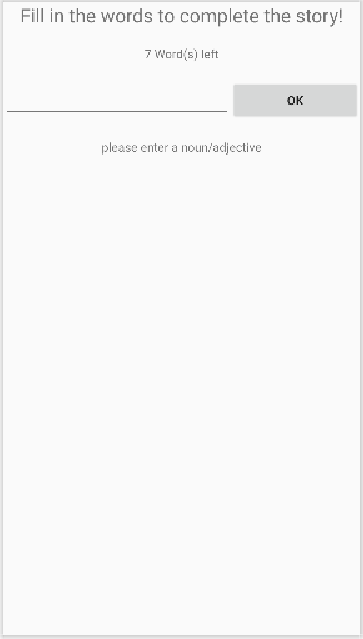
package com.example.android.activity1;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
  
import java.util.ArrayList;  
import java.util.Random;  
import java.util.Scanner;  
  
public class EnterWordsActivity extends AppCompatActivity {  
  
 private Button mOKButton;  
 private EditText mMadLibEditText;  
 private TextView mWordSpecifierTextView;  
 private TextView mWordsLeftTextView;  
 private Story mMainStory;  
 private Scanner mScanner;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_enter\_words);  
  
 mOKButton = (Button)findViewById(R.id.btn\_ok);  
 mMadLibEditText = (EditText)findViewById(R.id.edit\_txt\_word);  
 mWordSpecifierTextView = (TextView)findViewById(R.id.txt\_hint);  
 mWordsLeftTextView = (TextView)findViewById(R.id.txt\_wordsLeft);  
  
 ArrayList<Integer> files = new ArrayList<>();  
 files.add(R.raw.madlib0);  
 files.add(R.raw.madlib1);  
 files.add(R.raw.madlib2);  
 files.add(R.raw.madlib3);  
 files.add(R.raw.madlib4);  
 Random random = new Random();  
 int index = random.nextInt(files.size());  
 int id = files.get(index);  
 mScanner = new Scanner(getResources().openRawResource(id));  
 mMainStory = new Story(mScanner);  
  
 mWordsLeftTextView.setText(mMainStory.getPlaceholderRemainingCount() + " word(s) left to complete");  
 mWordSpecifierTextView.setText(mMainStory.getNextPlaceholder());  
 mOKButton.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if(!mMadLibEditText.getText().toString().equals("")) {  
 mMainStory.fillInPlaceholder(mMadLibEditText.getText().toString());  
 if (mMainStory.getNextPlaceholder().equals("")) {  
 startShowStoryActivity(mMainStory);  
 } else {  
 mMadLibEditText.setText("");  
 mWordsLeftTextView.setText(mMainStory.getPlaceholderRemainingCount() + " word(s) left to complete");  
 mWordSpecifierTextView.setText(mMainStory.getNextPlaceholder());  
 }  
 }  
 }  
 });  
 }  
 private void startShowStoryActivity(Story story) {  
 Intent intent = new Intent(this, ShowStoryActivity.class);  
 intent.putExtra("story", story.toString());  
 startActivity(intent);  
 }  
  
}

ShowStoryActivity.java

package com.example.android.activity1;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.text.Html;  
import android.view.View;  
import android.widget.Button;  
import android.widget.TextView;  
  
public class ShowStoryActivity extends AppCompatActivity {  
  
 private TextView mTextView;  
 private Button mStartOverButton;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_show\_story);  
  
 mTextView = (TextView)findViewById(R.id.txt\_story);  
 mStartOverButton = (Button)findViewById(R.id.btn\_startOver);  
  
 Intent intent = getIntent();  
 String stringThing = intent.getStringExtra("story");  
 mTextView.setText(Html.fromHtml(stringThing));  
  
 mStartOverButton.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 startMainActivity();  
 }  
 });  
 }  
  
 private void startMainActivity() {  
 Intent intent = new Intent(this, MainActivity.class);  
 startActivity(intent);  
 }  
}

Store.java

package com.example.android.activity1;  
  
import java.io.InputStream;  
import java.io.Serializable;  
import java.util.ArrayList;  
import java.util.List;  
import java.util.Scanner;  
  
public class Story implements Serializable {  
 private String text; *// text of the story* private List<String> placeholders; *// list of placeholders to fill in* private int filledIn; *// number of placeholders that have been filled in* private boolean htmlMode; *// set to true to surround placeholders with <b></b> tags* {  
 *// instance initializer; runs before any constructor* text = "";  
 placeholders = new ArrayList<String>();  
 filledIn = 0;  
 htmlMode = true;  
 clear();  
 }  
  
 */\*\* constructs a new empty Story \*/* public Story() {  
 *// empty* }  
  
 */\*\* constructs a new Story reading its text from the given input stream \*/* public Story(InputStream stream) {  
 read(stream);  
 }  
  
 */\*\* constructs a new Story reading its text from the given Scanner \*/* public Story(Scanner input) {  
 read(input);  
 }  
  
 */\*\* resets the story back to an empty initial state \*/* public void clear() {  
 text = "";  
 placeholders.clear();  
 filledIn = 0;  
 }  
  
 */\*\* replaces the next unfilled placeholder with the given word \*/* public void fillInPlaceholder(String word) {  
 if (!isFilledIn()) {  
 text = text.replace("<" + filledIn + ">", word);  
 filledIn++;  
 }  
 }  
  
 */\*\* returns the next placeholder such as "adjective",  
 \* or empty string if story is completely filled in already \*/* public String getNextPlaceholder() {  
 if (isFilledIn()) {  
 return "";  
 } else {  
 return placeholders.get(filledIn);  
 }  
 }  
  
 */\*\* returns total number of placeholders in the story \*/* public int getPlaceholderCount() {  
 return placeholders.size();  
 }  
  
 */\*\* returns how many placeholders still need to be filled in \*/* public int getPlaceholderRemainingCount() {  
 return placeholders.size() - filledIn;  
 }  
  
 */\*\* returns true if all placeholders have been filled in \*/* public boolean isFilledIn() {  
 return filledIn >= placeholders.size();  
 }  
  
 */\*\* reads initial story text from the given input stream \*/* public void read(InputStream stream) {  
 read(new Scanner(stream));  
 }  
  
 */\*\* reads initial story text from the given Scanner \*/* public void read(Scanner input) {  
 while (input.hasNext()) {  
 String word = input.next();  
 if (word.startsWith("<") && word.endsWith(">")) {  
 *// a placeholder; replace with e.g. "<0>" so I can find/replace it easily later  
 // (make them bold so that they stand out!)* if (htmlMode) {  
 text += " <b><" + placeholders.size() + "></b>";  
 } else {  
 text += " <" + placeholders.size() + ">";  
 }  
 *// "<plural-noun>" becomes "plural noun"* String placeholder = word.substring(1, word.length() - 1).replace("-", " ");  
 placeholders.add(placeholder);  
 } else {  
 *// a regular word; just concatenate* if (!text.isEmpty()) {  
 text += " ";  
 }  
 text += word;  
 }  
 }  
 }  
  
 */\*\* returns story text \*/* public String toString() {  
 return text;  
 }  
}

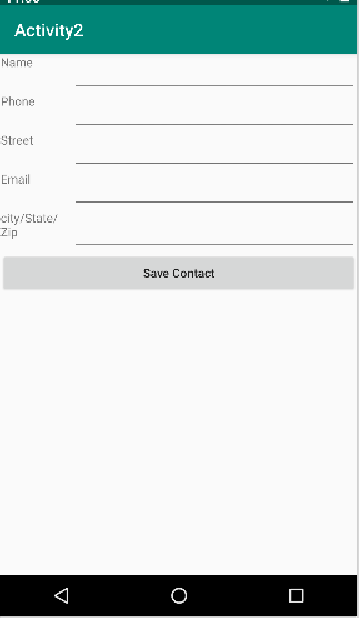
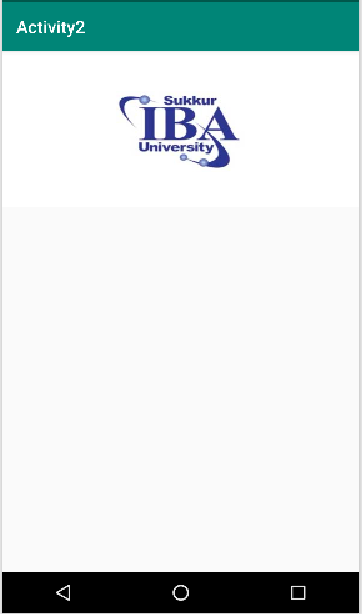
**Activity 2: Add contacts File :** Steps to follow

MainActivity.java

package com.example.android.activity2;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuInflater;  
import android.view.MenuItem;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
  
import java.io.FileInputStream;  
import java.util.Scanner;  
  
public class MainActivity extends AppCompatActivity {  
  
 String fileName = "contacts.txt";  
 FileInputStream fileInputStream;  
 Scanner scanner;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 setTitle("Contacts");  
 TextView tv = (TextView) findViewById(R.id.*textView*);  
 *//Button btn\_deleteAll = (Button) findViewById(R.id.deleteAll);* try {  
 fileInputStream = openFileInput(fileName);  
 scanner = new Scanner(fileInputStream);  
 String allText = "Name\t-\tNumber\t-\tEmail\t-\tStreet\t-\tCity\n";  
 while (scanner.hasNextLine()) {  
 allText += scanner.nextLine() + "\n";  
 }  
 tv.setText(allText);  
  
 } catch (Exception e) {  
 Toast.*makeText*(getApplicationContext(), "No file found!",  
 Toast.*LENGTH\_SHORT*).show();  
 }}  
  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
  
 MenuInflater inflater = getMenuInflater();  
 inflater.inflate(R.menu.*menu*, menu);  
 return super.onCreateOptionsMenu(menu);  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(@NonNull MenuItem item) {  
  
 Intent intent = new Intent(this, ContactsActivity.class);  
 startActivity(intent);  
 return super.onOptionsItemSelected(item);  
 }  
}

ContactsActivity.java

package com.example.android.activity2;  
  
import android.content.Context;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import java.io.File;  
import java.io.FileOutputStream;  
import java.io.IOException;  
  
public class ContactsActivity extends AppCompatActivity {  
  
 EditText txt\_phone, txt\_email, txt\_city, txt\_name, txt\_street;  
 Button btn\_save;  
 String fileName = "contacts.txt";  
 FileOutputStream fileOutputStream;  
 File file;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_contacts*);  
 setTitle("Add Contact");  
 txt\_city = (EditText) findViewById(R.id.*txt\_city*);  
 txt\_email = (EditText) findViewById(R.id.*txt\_email*);  
 txt\_name = (EditText) findViewById(R.id.*txt\_name*);  
 txt\_phone = (EditText) findViewById(R.id.*txt\_phone*);  
 txt\_street = (EditText) findViewById(R.id.*txt\_street*);  
 btn\_save = (Button) findViewById(R.id.*btn\_save*);  
  
 btn\_save.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if (txt\_name.getText().toString().isEmpty() || txt\_phone.getText().toString().isEmpty()  
 || txt\_email.getText().toString().isEmpty() || txt\_street.getText().toString().isEmpty()  
 || txt\_city.getText().toString().isEmpty()) {  
 Toast.*makeText*(getApplicationContext(), "Insert all data",  
 Toast.*LENGTH\_SHORT*).show();  
 } else {  
 String content = txt\_name.getText() + " - " + txt\_phone.getText() + " - " + txt\_email.getText()  
 + " - " + txt\_street.getText() + " - " + txt\_city.getText() + "\n";  
 saveToFile(content);  
 }  
 }  
 });  
 }  
  
  
 public void saveToFile(String fileContents) {  
  
 try {  
 fileOutputStream = openFileOutput(fileName, Context.*MODE\_APPEND*);  
 fileOutputStream.write(fileContents.getBytes());  
 fileOutputStream.close();  
 Toast.*makeText*(getApplicationContext(), "Contact Saved",  
 Toast.*LENGTH\_SHORT*).show();  
 finish();  
 } catch (IOException e) {  
 Toast.*makeText*(getApplicationContext(),"No File Found",  
 Toast.*LENGTH\_SHORT*).show();  
 }  
 }  
}

Activity 3: Create TODO List app. - Add all the to-do list items in the file instead of storing them in memory.

MainActivity.java

|  |
| --- |
| public class MainActivity extends AppCompatActivity { |
|  |  |
|  | EditText text; |
|  | ListView list; |
|  | String filename="todolist.txt"; |
|  |  |
|  | @Override |
|  | protected void onCreate(Bundle savedInstanceState) { |
|  | super.onCreate(savedInstanceState); |
|  | setContentView(R.layout.activity\_main); |
|  | text = findViewById(R.id.editTextTextPersonName); |
|  | list = findViewById(R.id.listview); |
|  | AddToList(); |
|  | } |
|  | public void AddItem(View view) |
|  | { |
|  | String item = text.getText().toString(); |
|  | FileOutputStream outputStream; |
|  | try { |
|  | outputStream = openFileOutput(filename,MODE\_APPEND); |
|  | outputStream.write(item.getBytes()); |
|  | outputStream.write("\n".getBytes()); |
|  | outputStream.close(); |
|  | System.out.println("DONE!"); |
|  | } |
|  | catch (Exception e) |
|  | { |
|  | e.printStackTrace(); |
|  | } |
|  | AddToList(); |
|  | } |
|  | public void AddToList() |
|  | { |
|  | File directory = getFilesDir(); |
|  | File file = new File(directory,filename); |
|  | System.out.println(file.toString()); |
|  |  |
|  | ArrayAdapter<String> adapter = new ArrayAdapter<String>(this, android.R.layout.simple\_list\_item\_1);; |
|  | FileInputStream inputStream; |
|  | try { |
|  | inputStream = new FileInputStream(file); |
|  | Scanner scanner = new Scanner(inputStream); |
|  | while(scanner.hasNext()) |
|  | { |
|  | adapter.add(scanner.next()); |
|  | } |
|  | list.setAdapter(adapter); |
|  | } catch (FileNotFoundException e) { |
|  | e.printStackTrace(); |
|  | } |
|  | } |
|  | } |

Activitymain.xml

|  |
| --- |
| <?xml version="1.0" encoding="utf-8"?> |
|  | <LinearLayout xmlns:android="http://schemas.android.com/apk/res/android" |
|  | xmlns:app="http://schemas.android.com/apk/res-auto" |
|  | xmlns:tools="http://schemas.android.com/tools" |
|  | android:layout\_width="match\_parent" |
|  | android:layout\_height="match\_parent" |
|  | android:orientation="vertical" |
|  | android:weightSum="1" |
|  | tools:context=".MainActivity"> |
|  |  |
|  | <ListView |
|  | android:id="@+id/listview" |
|  | android:layout\_width="match\_parent" |
|  | android:layout\_height="0dp" |
|  | android:layout\_weight="0.9"> |
|  |  |
|  | </ListView> |
|  |  |
|  | <LinearLayout |
|  | android:layout\_width="match\_parent" |
|  | android:layout\_height="0dp" |
|  | android:layout\_weight="0.1" |
|  | android:orientation="horizontal" |
|  | android:weightSum="1"> |
|  |  |
|  | <EditText |
|  | android:id="@+id/editTextTextPersonName" |
|  | android:layout\_width="0dp" |
|  | android:layout\_height="match\_parent" |
|  | android:layout\_margin="5dp" |
|  | android:layout\_weight="0.7" |
|  | android:ems="10" |
|  | android:hint="enter item" |
|  | android:inputType="textPersonName" |
|  | android:textSize="20dp" /> |
|  |  |
|  | <Button |
|  | android:id="@+id/button" |
|  | android:layout\_width="0dp" |
|  | android:layout\_height="match\_parent" |
|  | android:layout\_margin="5dp" |
|  | android:layout\_weight="0.3" |
|  | android:onClick="AddItem" |
|  | android:text="ADD" |
|  | android:textSize="18dp" /> |
|  | </LinearLayout> |
|  | </LinearLayout> |