

CS473 Mobile Device Programming – Distance Education

MID-TERM REVIEW

Lessons for Midterm Examination

Lesson – 1 – Introduction to Android

Lesson – 2 – Kotlin Fundamentals

Lesson – 3 – Creating First App

Lesson – 4 – Views, Layouts, Resources, and Lifecycle

Lesson – 5 – Intents

Lesson – 6 – User Input Controls

Lesson – 7 – Menus, Fragments, Tab layout with Swipe views, and Material Design

Course Resources: www.online.cs.mum.edu (Sakai)

Reading Resources: Lecture PPT and Demo Code

Important points about the Exam

1. Midterm Date & Time through Proctor Track

"it is available" – 12/03/2022 12:00 PM

"it is due" – 12/03/2022 3:00 PM

"time limit" – 2 hours

"Number of Submissions" = 1 time

All times are based on Central Time (CT).

2. Midterm should be closed book

3. No mobile phone usage and Rest room break.

4. **Requires Proctor track Face scan, complete room scan and ID scan.**

5. Necessary hints and API will be given in the exam itself.

6. The Midterm contains the following

a. True or False

b. Multiple Choice Questions

c. Questions from Diagram understanding. Questions will be True/False or MCQs only –

Refer Lecture PPT

i. Android Architecture (Lesson-1)

- ii. Android Project Explorer Structure (Lesson 3)
- iii. Android Activity Life Cycle (Lesson 4)
- d. **Coding Part.** Questions will be multiple choice. Pick the right code segments for the problem requirements. Able to know how to write implementation.

Lesson-2

- How to write Kotlin functions (main, user-defined functions, single expression functions)
- Able to know Kotlin class and define constructors, methods, and object creation
- Able to convert the given Java code to Kotlin code

Lesson-5

- How to work with Explicit Intents and able to pass data and pass objects
 - Refer to Demo Codes: ExplicitIntentDemo, ExplicitIntentObjectDemo
- How to work with Implicit Intents(No need for third-party apps like WhatsApp)
 - Refer: Slide-20, Demo Code: IntentsDemo

Lesson-6

- How to work with Simple ListView using ArrayAdapter
 - DemoCode\Lesson6 Day1\ListViewPlanet

Lesson 7

- Creation of Fragments steps (Slide16). Able to know how to add or replace the fragments when the user presses the button.
 - DemoCode\Lesson 7 Day 2 Fragments tabs\ FragmentDemo.rar

Skip the below topics for the Midterm examination

- a) Lesson 6 – Day 2 - RecyclerView
- b) Lesson 7 – Day 2 - Tab Layout, BottomNavigationView

Sample questions from each category

1. True or False and Multiple-Choice Questions.

- a) The View class is the basic building block for all UI components.

a) True

b) False

b) When the Activity is no longer in the memory, it is said to be in the _____.

- a) running state b) paused state c) stopped state **d) destroyed state**

2. Coding Questions.

Question1: Choose the correct Kotlin code(s) for the given Java Code.

```
Uri uri = Uri.parse("http://www.google.com");  
Intent it = new Intent(Intent.ACTION_VIEW,uri);
```

- a) `val uri = Uri.parse("http://www.google.com");`
 `val it = Intent(Intent.ACTION_VIEW,uri);`
b) `val uri:Uri = Uri.parse("http://www.google.com");`
 `val it:Intent = Intent(Intent.ACTION_VIEW,uri);`

Answer: Both a) and b) are correct. In Sakai, you will get Multiple answer selections options

Question 2: What are the right code segments for the below blank lines

```
class MainActivity : AppCompatActivity() {  
    override fun onCreate(savedInstanceState: _____) {  
        super.onCreate(savedInstanceState)  
        _____(R.layout.activity_main)  
    }  
}
```

- a) `savedInstanceState:Bundle?` b) `savedInstanceState:InstanceState`
 `setContentView(R.layout.activity_main)` `setView(R.layout.activity_main)`

Answer: (a)

Focus on the following questions from each lesson.

Lesson-1

1. What is Android?
2. Different layers of Android Architecture.
3. Android Features.
4. Android App components.
5. Latest Android Version and API Level. (Refer: <https://source.android.com/docs/setup/about/build-numbers>)

Lesson-2

1. About Kotlin?
2. Kotlin Features.
3. Kotlin Data Types.
4. Able to know how to write Kotlin main functions and own functions.
5. Mutable and Immutable fields in Kotlin
6. Kotlin Strings & String Template.
7. Null safety operators and their purposes in Kotlin.
8. How to work with Array and ArrayList in Kotlin?
9. What is a single expression in Kotlin?
10. Kotlin Visibility / Access four Modifiers.
11. How to create Class, Constructors, functions, and Objects in Kotlin?
12. What is a data class, and how to create a data class in Kotlin?

Lesson -3

1. What is Activity?
2. Important folders in the Android Project Folders and their uses.
3. What is an Android Manifest file?
4. What is AVD Manager?
5. How to handle events in Android using a listener or function from XML onClick? (Only Button Click, not for any other UIs)

Lesson-4

1. What is View and View Group in Android?
2. How to set properties and values in your XML? (Slide-12)
3. Common Layouts used in Android.
4. Difference between class hierarchy and view hierarchy.
5. Describe the res folders and their uses.
6. Activity life cycle diagram, call-back methods, and various states.
7. When do you need to save the instance state, and how can you perform it?

Lesson-5

1. What is Intent, and what are the types of Intent in Android?

2. How to create Explicit Intents and pass data and objects. (like UserAccount)?
3. How to use Implicit Intent? (Slide -20)
4. Examples of Implicit Intents and their purposes. (Refer to Demo Code: IntentsDemo)
5. How to define Intent Filter in the Android Manifest file? (Slide -42)

Lesson-6

1. Different options to get input from the user. (Slide -8)
2. Common input types of EditText. (Slide-12 – Lesson 6 – Day 1)
3. What is the use of the Adapter class?
4. What is Toast Message, and how to show Toast in apps? (Slide-25 – Lesson 6 – Day 1)
5. About Android dialogs & How to create Android Dialogs? (slides – 38 & 39)

Lesson-7

1. What is the Options menu?
 2. What is the Popup menu?
 3. What is a Context menu?
 4. What is a Fragment?
 5. Fragment life cycle activities.
 6. How to add Fragments in your activity XML file?
 7. What is SnackBar?
 8. What is the Difference between SnackBar and Toast?
 9. What is View binding and its advantages.
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