

PMA Re-exam 2024 Answers

Question 1

a)

```
Row {  
    Text("Some text")  
    Text("Some more text")  
    Text("Last text")  
}
```

[4 marks]

b)

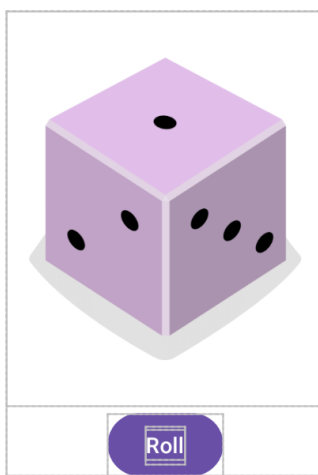
BirthdayCardPreview

Happy Birthday, Dave! From
Susanne

[6 marks]

Question 2

- a) No, because a default value for the modifier parameter is provided in the definition. [2 marks]
- b) Causes layout object to fill the entire screen. [2 marks]
- c) Causes the content of the layout object to be centred vertically and horizontally. [2 marks]
- d) res/values/strings.xml [2 marks]
- e)



[2 marks]

Question 3

- a)
 - i. Column
 - ii. LazyColumn
 - iii. LazyColumn [3 marks]
- b) So that there is a suitable icon for each density bucket (mdpi, hdpi, xdpi, etc.) in order to avoid blurry app icons at certain screen densities. [2 marks]
- c) Singleton class [2 mark]
- d) Lots of possibilities, e.g., player statistics in a mobile game for the current user, interacting with a single hardware device such as a speaker, an object to access a remote data source, authentication where only one user is logged in at a time. [2 mark]
- e) Replace the "class" keyword with "object" in the singleton definition, e.g.,
object StudentProgress {
...
} [1 mark]

Question 4

- a) onResume
- b) onDestroy
- c) onRestart
- d) onStop
- e) onCreate

[2 marks for each correct part]

Question 5

- a) A converter factory converts strings obtained over the internet into objects. More generally, it tells Retrofit what to do with the data that is received back from the server. A converter factory is created in line 5. [3 marks]
- b) The @GET annotation tells Retrofit that the GET request method is being used and "photos" is a relative URL that is appended to the base URL to define an endpoint for the request. [3 marks]
- c) Lines 14-18. [1 mark]
- d) Lazy initialization is when object creation is purposely delayed until you actually need the object, in order to avoid unnecessary computation or use of resources. [2 marks]
- e) retrofitService [1 mark]

Question 6

- a) A DAO is a pattern that separates the persistence layer from the rest of the app. Hides complexities of database operations in an underlying persistence layer. Lets you change the data layer independently of the code that uses the data. DAO provides convenience methods for querying/retrieving, inserting, deleting, updating database [2 marks]
- b) This allows the method to run asynchronously on a separate thread. This is necessary because database operations can take some time to execute. Room does not allow methods running on the main thread to access a database. [2 marks]
- c) The new item is ignored. [2 marks]
- d) With Flow as the return type, a notification is sent whenever the data in the database changes. The Room keeps this Flow updated, which means you only have to explicitly get the data once. [2 marks]
- e) Room automatically runs them on the background thread because they return Flow-type objects. So they don't need to be explicitly defined as suspend functions and they don't need to be called within a coroutine scope. [2 marks]

Question 7

- a) i) CoroutineWorker. [2 marks] ii) doWork(). [2 marks]
- b) Data objects. [2 marks]
- c) Represents a request to do some work. You define the work by overriding the WorkRequest's doWork() method. [2 marks]
- d) OneTimeWorkRequest and PeriodicWorkRequest [2 marks]

Question 8

- a) True
- b) False
- c) False
- d) True
- e) True

[2 marks for each correct part]