CAT 1

Mobile Application Development

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Exercise 1

a)

To enable full-screen (immersive) mode on an Android application, the minimum API Level where this feature is available is API Level 19 (Android 4.4 KitKat).

b)

According to the Android Developers Documentation, the use of a local SQLite database (android.database.sqlite) has been available since API Level 1, all the way to the current latest API Level (31). The version of SQLite changes with every API Level.

Exercise 2

a)

```
var name : String = " hello "
name = null
```

Problem `name` is not nullable, so trying to make it null will throw an error.

Solution

```
var name : String? = " hello "
name = null
```

Now, the `name` variable can be set to `null`.

b)

```
val v1 : Int = 5
v1 = 10
```

Problem `v1` is a **constant value**, so trying to change its value will throw an error.

Solution

```
var v1 : Int = 5
v1 = 10
```

Now, the `v1` variable can be reassigned.

c)

```
var v2 : String ? = null
var v3 : Any = "cat"
v2 = v3
```

Problem Cannot assign the value of `v3` of type **Any** to a variable `v2` of type **String**. In order to assign the value, a cast operation must be called to ensure that `v2` receives a **String**.

Solution

```
var v2 : String? = null
var v3 : Any = "cat"
v2 = v3.toString()
```

Now, the `v2` variable can be set to the **String** value of `v3`.

Exercise 3

a)

```
val shopping_list = ArrayList<String>()
shopping_list.add("Apples")
shopping_list.add("Bananas")
shopping_list.add("Watermelon")
shopping_list.add("Oranges")
shopping_list.add("Pineapple")
shopping_list.removeAt(0)
```

b)

```
val dic =  HashMap<Int, String>()
dic[1] = "value1"
dic[2] = "value2"
for ((key, value) in dic) {
    Log.i("$key","$value")
}
```

Exercise 4

a)

```
class Seminary(pname: String, pduration: Int) {
    var _name: String = pname
    var _duration: Int = pduration
}
```

Note: to match the usual standard, private attributes are preceded by an underscore _.

b)

```
class User(pid: Int) {
    var _name: String = "Unknown"
    var _id: Int = pid
    var _attendance: ArrayList<Seminary>
}
```

c)

Here is the updated `User` class.

```
class User(pid: Int) {
    var _name: String = "Unknown"
    var _id: Int = pid
    var _attendance: ArrayList<Seminary>
    fun addSeminary(d:Seminary) {
        _attendance.add(d)
    }
}
```

Exercise 5

a)

```
var user1 = User(8)
```

b)

```
var seminary1 = Seminary("AI for dummies", 50)
```

c)

```
user1.addSeminary(seminary1)
```