Northern Michigan University (Marquette Co, MI)

CS345-01-23W Android Programming (Andrew A. Poe) Name: _____
Practice Final Examination Page 1/2 Sunday 30 April 2023 7:00 P.M. EDT

1. Under what circumstances would you want to override an activity's onStart() method? Under what circumstances would you want to put code in onStart() rather than in onCreate()? Be specific in your answer. (Don't say something unuseful like "When the code has to run at the time of onStart" or something like that.)

onStart() runs whenever the activity starts or restarts. The activity is created ONCE, but it may have to restart any number of times, for example, if your activity resumes control after having started a secondary activity. If code needs to run not just at the moment of creation but every time it resumes control from another activity, onStart() is a better place to put that code than onCreate().

2. Given the Kotlin class definitions below for a linked list and a linked list node:

```
class LL {

 var head:LLN? = null
}
```

```
class LLN (w:String,n:LLN?) {

 var word = w
 var next = n
}
```

Write the method in LL: BackwardsA() takes no parameters and returns nothing. It prints those words in the list beginning with A. The words must be printed in reverse order, with the word closest to the tail printing first and the word closest to the head printing last. Use recursion only; no loops.

```
LL:
fun BackwardsA() {

 head?.BackwardsA()
}

LLN:
fun BackwardsA() {

 next?.BackwardsA()
 if (word!="" && word[0]=='A')
  println (word)
}
```

3. Write, in Kotlin, that portion of onCreate() in a secondary activity that identifies a button with a specific button in the layout, so that when it is clicked the activity ends and the number 12 is returned to the main activity.

```
myButt = findViewById (R.id.button)
myButt!!.setOnClickListener {

 var i:Intent? = Intent ()
 i!!.putExtra (ANSWER_INT,12)
 setResult (RESULT_OK,i)
 finish()
```

```
}
```

4. I have the following method in Kotlin:

```
fun SecondLargest (A:Array<Int>):Int { ... }
```

This method finds and returns the second largest integer in the array. You may assume that the array is not empty and that there are no ties in the array.

Write the code for this method. Be careful not to go out of bounds.

```
pos = 0
for (i in 0..A.length-1)
 if (A[i] < A[pos]) pos = i
A[pos] = A[length-1]
pos = 0
for (i in 0..A.length-2)
 if (A[i] < A[pos]) pos = i
return A[pos]
```

5. Write the Kotlin code that will open the image file ("http://philos.nmu.edu/captainamerica.jpg") and display it on a ImageView named CaptainAmerica.

```
           val infile =
java.net.URL("http://philos.nmu.edu/captainamerica.jpg").openStream()
           val bm = BitmapFactory.decodeStream(infile)
           CaptainAmerica.setImageBitmap(bm)
```

6. Write the Kotlin code that will play the first 5 seconds of the national anthem. This song can be found at http://philos.nmu.edu/anthem.mp3 .

```
            val mp = MediaPlayer()
            mp.setDataSource("http://philos.nmu.edu/anthem.mp3")
            mp.prepare()
            mp.start()
            try {
                TimeUnit.SECONDS.sleep(5)
            } catch (e: Exception) {
            }
            mp.pause()
```