

Three questions from the Fall 2018 ACS-1903 Final Examination

2. Complete **Program 2** to simulate tossing 3 coins. When a coin is tossed it can land heads, or it can land tails. The program must continue tossing the 3 coins until all coins show heads or all coins show tails. The program displays the result each time. As an example, we could have the following result:

```
Head, Tail, Tail
Tail, Tail, Head
Head, Head, Tail
Head, Head, Head
```

```
import java.util.Random;
public class Program2 {
    public static void main(String[] args) {
```

3. Rewrite **Program 3** with methods so its main method is:

```
public static void main ( String [] args ) {
    String number = getStudentNumber() ;
    boolean valid = analyzeNumber(number) ;
    displayValidity (valid) ;
}
```

```
import java.util.Scanner;
public class Program3 {
    public static void main(String[] args) {
        Scanner kb = new Scanner(System.in);
        System.out.println("enter a student number:");
        String number = kb.next();
        boolean valid=true;
        for (int i=0; i<number.length(); i++){
            if (!Character.isDigit(number.charAt(i)))
                valid = false;
        }
        System.out.println(number+" is "+(valid?"valid":"not valid"));
    }
}
```

4. Complete **Program 4** so all occurrences of one string are replaced by another string. We refer to these two strings with variables *find* and *replace*. The program obtains the values for *find* and *replace* from the user. The program then reads lines from *Readme.txt* and displays each line with all occurrences of *find* replaced by *replace*. Assume the value of *find* and *replace*, and the text in *Readme.txt* are all lowercase.

As an example, suppose the user provides the two strings: **sun moon**
and *Readme.txt* contains:

```
here comes the sun, and i say
sun, sun, sun, here it comes
```

then Program 4 displays

```
here comes the moon, and i say
moon, moon, moon, here it comes
```

```
import java.util.Scanner;
import java.io.*;
public class Program4 {
    public static void main(String[] args) throws FileNotFoundException{
        Scanner kb = new Scanner(System.in);
        Scanner f = new Scanner(new File("Readme.txt"));
        System.out.println("enter text for find and then for replace");
        String find, replace;
```