Chapter 5 Loops – Programming Exercises – `for` Loops

Draw a flowchart for the following scenarios, then implement the flowcharts:

1. **Print a miles and kilometers equivalency table similar to the one below, but continue to 100 miles (1 mile = 1.609 kilometers). Make sure to format the chart, have headings, and display the numbers to 2 decimal places.**

Miles	Kilometers
5	8.04
10	16.09
15	24.13
20	32.18

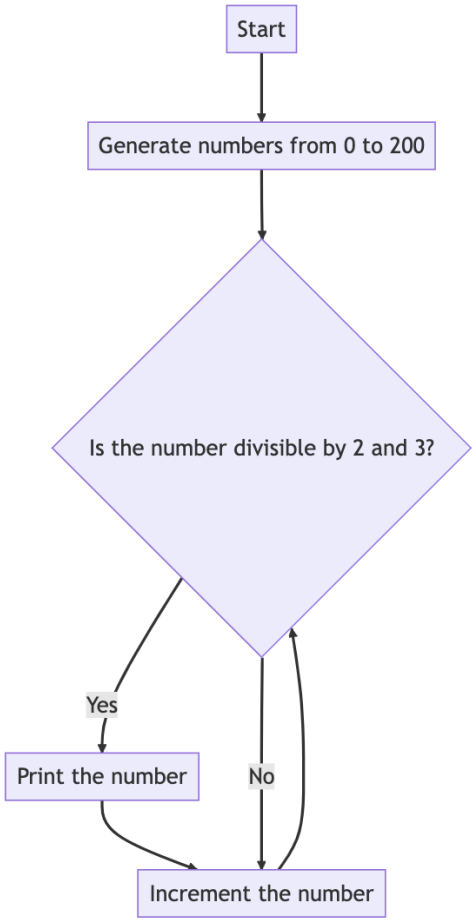
```
public class Main {
    public static void main(String[] args) {
        System.out.printf("%-10s %-10s%n", "Miles", "Kilometers");
        for (int miles = 5; miles <= 100; miles += 5) {
            double kilometers = miles * 1.609;
            System.out.printf("%-10d %-10.2f%n", miles, kilometers);
        }
    }
}
```

2. **Print a kilograms to pounds equivalency table similar to the one below, but continue down to 1 kilogram (1 kilogram = 2.2 pounds). Make sure to format the chart, have headings, and display the numbers to 2 decimal places.**

Kilograms	Pounds
20	44
19	41.8
18	39.6
17	37.4

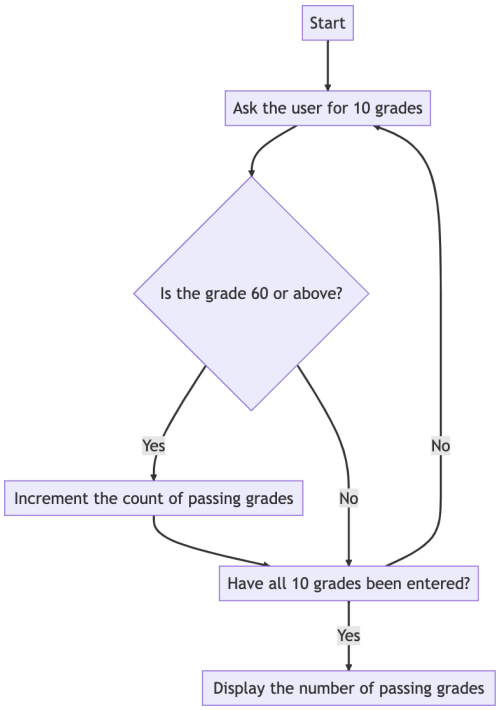
```
public class Main {
    public static void main(String[] args) {
        System.out.printf("%-10s %-10s%n", "Kilograms", "Pounds");
        for (int kilograms = 20; kilograms >= 1; kilograms--) {
            double pounds = kilograms * 2.2;
            System.out.printf("%-10d %-10.2f%n", kilograms, pounds);
        }
    }
}
```

3. **Display the numbers between 0 and 200 that are evenly divisible by both 2 and 3**




```
public class Main {
    public static void main(String[] args) {
        for (int i = 0; i <= 200; i++) {
            if (i % 2 == 0 && i % 3 == 0) {
                System.out.println(i);
            }
        }
    }
}
```

4. **Ask the user for 10 grades, display the number of grades that are passing (60 and above)**



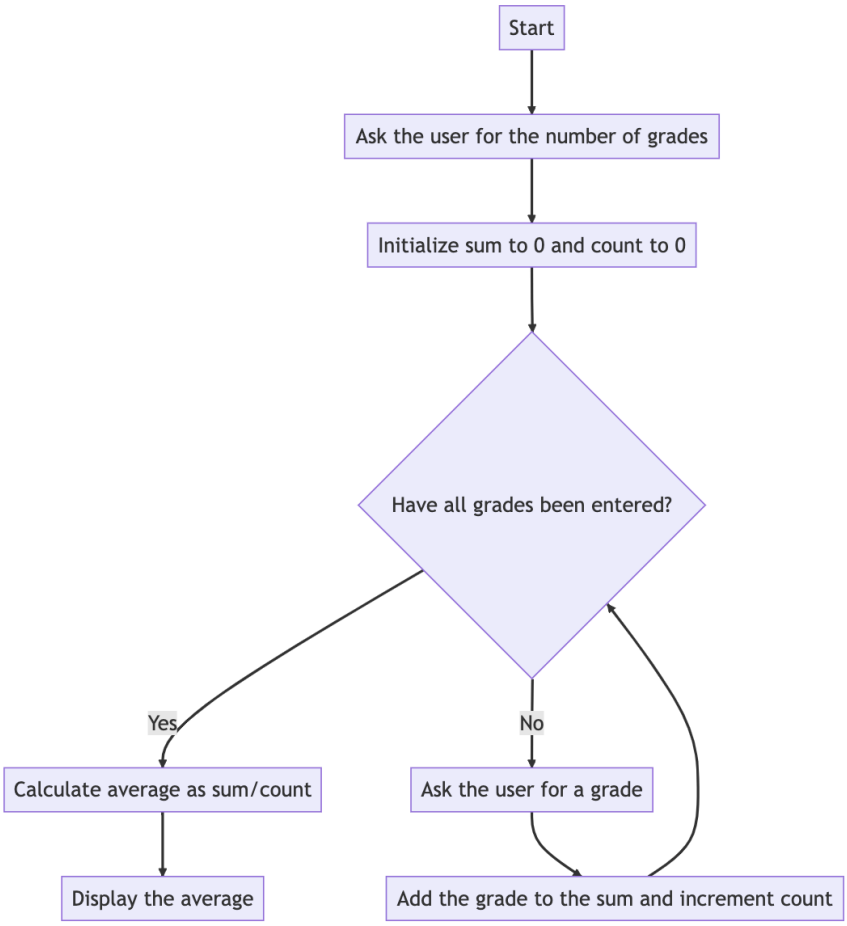

```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        int passingGrades = 0;

        for (int i = 0; i < 10; i++) {
            System.out.println("Enter grade " + (i + 1) + ": ");
            int grade = scanner.nextInt();
            if (grade >= 60) {
                passingGrades++;
            }
        }

        System.out.println("Number of passing grades: " +
passingGrades);
    }
}
```

5. **Prompt the user for how many grades will be entered to find the average of the grades. Then prompt the user to enter the grades, find the average and display it.**




```
import java.util.Scanner;

public class Main {
    public static void main(String[] args) {
        Scanner scanner = new
Scanner(System.in);
        System.out.println("Enter the number
of grades: ");
        int numGrades = scanner.nextInt();
        int sum = 0;

        for (int i = 0; i < numGrades; i++) {
            System.out.println("Enter grade " +
(i + 1) + ": ");
            int grade = scanner.nextInt();
            sum += grade;
        }

        double average = (double) sum /
numGrades;
        System.out.println("The average
grade is: " + average);
    }
}
```

6. **Display the ASCII table by rows with 10 in each row**

```
public class Main {
    public static void main(String[] args) {
        for (int i = 0; i < 128; i++) {
            System.out.printf("%3d: %c", i, (char) i);
            if (i % 10 == 9) {
                System.out.println();
            } else {
                System.out.print("\t");
            }
        }
    }
}
```