Assignment 1

Module: Java Programming
Assigned: 7 July 2019
Due: 17 July 2019

1. Find sum of 5 Numbers.

```
import java.util.Scanner;
public class QuestionOne {
   public static void main(String[] args) {
       Sum sum = new Sum();
       sum.readNumbers();
       sum.printSum();
   }
}
class Sum {
   private int num1, num2, num3, num4, num5, sum = 0;
   public void readNumbers() {
       Scanner scanner = new Scanner(System.in);
       try {
           System.out.print("Enter number 1: ");
           num1 = scanner.nextInt();
           System.out.print("Enter number 2: ");
           num2 = scanner.nextInt();
           System.out.print("Enter number 3: ");
           num3 = scanner.nextInt();
           System.out.print("Enter number 4: ");
           num4 = scanner.nextInt();
           System.out.print("Enter number 5: ");
           num5 = scanner.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void printSum() {
       sum = num1 + num2 + num3 + num4 + num5;
       System.out.println("The sum of 5 numbers: " + sum);
   }
}
```

2. Find average of 3 numbers.

```
import java.util.Scanner;
public class QuestionTwo {
   public static void main(String[] args) {
       Average avg1 = new Average();
       avg1.readNumbers();
       avg1.showAverage();
   }
}
class Average {
   private int num1, num2, num3;
   private double avg;
   public void readNumbers() {
       Scanner scanner = new Scanner(System.in);
       try {
           System.out.print("Enter number 1: ");
           num1 = scanner.nextInt();
           System.out.print("Enter number 2: ");
           num2 = scanner.nextInt();
           System.out.print("Enter number 3: ");
           num3 = scanner.nextInt();
```

```
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    public void showAverage() {
        avg = (num1 + num2 + num3) / 3;
        System.out.println("The average of 3 numbers: " + avg);
    }
}
```

3. Digit to day.

```
import java.util.Scanner;
public class QuestionThree {
    public static void main(String[] args) {
        Days d = new Days();
        d.readDay();
        d.printDay();
    }
}
class Days {
    private int day = 0;
    public void readDay() {
        Scanner s = new Scanner(System.in);
        try {
            System.out.print("Enter day: ");
            day = s.nextInt();
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    public void printDay() {
        switch (day) {
            case 1:
                System.out.println("Sunday");
                break;
            case 2:
                System.out.println("Monday");
                break;
            case 3:
                System.out.println("Tuesday");
                break;
            case 4:
                System.out.println("Wednesday");
                break;
            case 5:
                System.out.println("Thursday");
                break;
            case 6:
                System.out.println("Friday");
                break;
            case 7:
                System.out.println("Saturday");
                break;
            default:
                System.out.println("Invalid day");
        }
    }
}
```

4. Digit to month.

```
import java.util.Scanner;
public class QuestionFour {
   public static void main(String[] args) {
       Months m = new Months();
       m.readMonth();
       m.showMonth();
   }
}
class Months {
   private int month = 0;
   public void readMonth() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter month: ");
           month = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void showMonth() {
       switch (month) {
           case 1:
               System.out.println("January");
               break;
           case 2:
               System.out.println("February");
               break;
           case 3:
               System.out.println("March");
               break;
           case 4:
               System.out.println("April");
               break;
           case 5:
               System.out.println("May");
               break;
           case 6:
               System.out.println("June");
               break;
           case 7:
               System.out.println("July");
               break;
           case 8:
               System.out.println("August");
               break;
           case 9:
               System.out.println("September");
               break;
           case 10:
               System.out.println("October");
               break;
           case 11:
               System.out.println("November");
               break;
           case 12:
               System.out.println("December");
               break;
           default:
               System.out.println("Invalid month");
       }
   }
}
```

5. Find if the entered number is even or odd.

```
import java.util.Scanner;
public class QuestionFive {
   public static void main(String[] args) {
       EvenOdd eo = new EvenOdd();
       eo.readNumber();
       eo.show();
   }
}
class EvenOdd {
   private int num = 0;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       if (num % 2 == 0) {
           System.out.println(num + " is an even number");
       } else {
           System.out.println(num + " is an odd number");
       }
   }
}
```

6. Find if the entered year is leap or not.

```
import java.util.Scanner;
public class QuestionSix {
   public static void main(String[] args) {
       Leaper l = new Leaper();
       l.readYear();
       l.leapOrNot();
   }
}
class Leaper {
   private int year;
   public void readYear() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter year: ");
           year = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void leapOrNot() {
       if (year % 4 == 0) {
           System.out.println(year + " is a leap year.");
       } else {
           System.out.println(year + " is not a leap year.");
       }
   }
}
```

7. Find if the entered number is positive or negative.

```
import java.util.Scanner;
public class QuestionSeven {
   public static void main(String[] args) {
       PosNeg pn = new PosNeg();
       pn.readNumber();
       pn.show();
   }
}
class PosNeg {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       if (num == 0) {
           System.out.println("Number " + num + " is neither positive nor negative.");
       } else if (num > 0) {
           System.out.println("Number " + num + " is positive.");
       } else {
           System.out.println("Number " + num + " is negative.");
       }
   }
}
```

8. Find the biggest number among 4 numbers.

```
import java.util.Scanner;
public class QuestionEight {
   public static void main(String[] args) {
       Biggest b = new Biggest();
       b.readNumbers();
       b.showBiggest();
   }
}
class Biggest {
   private int num1, num2, num3, num4, biggest = 0;
   public void readNumbers() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number 1: ");
           num1 = s.nextInt();
           System.out.print("Enter number 2: ");
           num2 = s.nextInt();
           System.out.print("Enter number 3: ");
           num3 = s.nextInt();
           System.out.print("Enter number 4: ");
           num4 = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void showBiggest() {
       if (num1 > biggest) biggest = num1;
       if (num2 > biggest) biggest = num2;
       if (num3 > biggest) biggest = num3;
       if (num4 > biggest) biggest = num4;
       System.out.println("The biggest number is " + biggest);
   }
}
```

9. Find the smallest number among 5 numbers.

```
import java.util.Scanner;
public class QuestionNine {
   public static void main(String[] args) {
       Smallest s = new Smallest();
       s.readNumbers();
       s.showSmallest();
   }
}
class Smallest {
   private int num1, num2, num3, num4, num5, smallest;
   public void readNumbers() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number 1: ");
           num1 = s.nextInt();
           System.out.print("Enter number 2: ");
           num2 = s.nextInt();
           System.out.print("Enter number 3: ");
           num3 = s.nextInt();
           System.out.print("Enter number 4: ");
           num4 = s.nextInt();
           System.out.print("Enter number 5: ");
           num5 = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void showSmallest() {
       smallest = num1;
       if (num2 < smallest) smallest = num2;
       if (num3 < smallest) smallest = num3;
       if (num4 < smallest) smallest = num4;
       if (num5 < smallest) smallest = num5;
       System.out.println("The smallest number is " + smallest);
   }
}
```

10. Find the second smallest among 4 numbers.

```
import java.util.Scanner;
public class QuestionTen {
   public static void main(String[] args) {
       SecondSmallest ss = new SecondSmallest();
       ss.readNumbers();
       ss.show();
   }
}
class SecondSmallest {
   private int num1, num2, num3, num4;
   public void readNumbers() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number 1: ");
           num1 = s.nextInt();
           System.out.print("Enter number 2: ");
           num2 = s.nextInt();
           System.out.print("Enter number 3: ");
           num3 = s.nextInt();
           System.out.print("Enter number 4: ");
           num4 = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       int sm1, sm2;
       sm1 = num1;
```

```
        if (num2 < sm1) {
            sm1 = num2;
            num2 = num3;
        }
        if (num3 < sm1) {
            sm1 = num3;
            num3 = num4;
        }
        if (num4 < sm1) {
            sm1 = num4;
            num4 = num1;
        }
        sm2 = num4;
        if (num1 != sm1 && num1 < sm2) sm2 = num1;
        if (num2 != sm1 && num2 < sm2) sm2 = num2;
        if (num3 != sm1 && num3 < sm2) sm2 = num3;
        if (num4 != sm1 && num4 < sm2) sm2 = num4;
        System.out.println("The second smallest number is " + sm2);
    }
}
```

11. Find the second largest among 3 numbers.

```
import java.util.Scanner;
public class QuestionEleven {
    public static void main(String[] args) {
        SecondLargest sl = new SecondLargest();
        sl.readNumbers();
        sl.show();
    }
}
class SecondLargest {
    private int num1, num2, num3;
    public void readNumbers() {
        Scanner s = new Scanner(System.in);
        try {
            System.out.print("Enter number 1: ");
            num1 = s.nextInt();
            System.out.print("Enter number 2: ");
            num2 = s.nextInt();
            System.out.print("Enter number 3: ");
            num3 = s.nextInt();
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    public void show() {
        int b1 = 0, b2 = 0;
        if (num1 > b1) b1 = num1;
        if (num2 > b1) b1 = num2;
        if (num3 > b1) b1 = num3;
        if (num1 != b1 && num1 > b2) b2 = num1;
        if (num2 != b1 && num2 > b2) b2 = num2;
        if (num3 != b1 && num3 > b2) b2 = num3;
        System.out.println("Second largest number is " + b2);
    }
}
```

12. Read a number and check if it's divisible by 2 and 3.

```
import java.util.Scanner;
public class QuestionTwelve {
    public static void main(String[] args) {
        DivByTwoThree dbtt = new DivByTwoThree();
        dbtt.readNumber();
        dbtt.show();
    }
}
```

```
class DivByTwoThree {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       if (num % 2 == 0 && num % 3 == 0) {
           System.out.println("Number " + num + " is divisible by both 2 and 3.");
       } else {
           if (num % 2 == 0) {
               System.out.println("Number " + num + " is divisible by only 2.");
           } else if (num % 3 == 0) {
               System.out.println("Number " + num + " is divisible by only 3.");
           } else {
               System.out.println("Number " + num + " is NOT divisible by either 2 or
3.");
           }
       }
   }
}
```

13. Grade program.

```
import java.util.Scanner;
public class QuestionThirteen {
   public static void main(String[] args) {
       Grade g = new Grade();
       g.readMarks();
       g.evaluate();
   }
}
class Grade {
   private int marks;
   public void readMarks() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter marks: ");
           marks = s.nextInt();
       } catch (Exception e) {
           System.out.println("Invalid marks");
       }
   }
   public void evaluate() {
       if (marks < 0 || marks > 100) {
           System.out.println("Invalid marks");
       } else {
           if (marks < 40) System.out.println("Grade F");
           else if (marks < 50) System.out.println("Grade E");
           else if (marks < 65) System.out.println("Grade D");
           else if (marks < 75) System.out.println("Grade C");
           else if (marks < 85) System.out.println("Grade B");
           else System.out.println("Grade A");
       }
   }
}
```

14. Read a number and check if the number is 1, 2, 3 or 4 digits.

```
import java.util.Scanner;
public class QuestionFourteen {
   public static void main(String[] args) {
       CountDigits cd = new CountDigits();
       cd.readNumber();
       cd.count();
   }
}
class CountDigits {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void count() {
       int count = (new Integer(num)).toString().length();
       System.out.println("Number of digits: " + count);
   }
}
```

15. Triangle program.

```
import java.util.Scanner;
public class QuestionFifteen {
   public static void main(String[] args) {
       Triangle t = new Triangle();
       t.readAngles();
       t.show();
   }
}
class Triangle {
   private int angle1, angle2, angle3;
   public void readAngles() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter angle 1: ");
           angle1 = s.nextInt();
           System.out.print("Enter angle 2: ");
           angle2 = s.nextInt();
           System.out.print("Enter angle 3: ");
           angle3 = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       boolean invalid = (angle1 + angle2 + angle3) != 180;
       boolean equilateral = angle1 == angle2 && angle1 == angle3;
       boolean isosceles = angle1 == angle2 || angle1 == angle3 || angle2 == angle3;
       boolean rightAngled = angle1 == 90 || angle2 == 90 || angle3 == 90;
       if (invalid) System.out.println("Invalid triangle");
       else if (equilateral) System.out.println("Equilateral triangle");
       else if (isosceles) System.out.println("Isosceles triangle");
       else if (rightAngled) System.out.println("Right-angled triangle");
       else System.out.println("Normal triangle");
   }
}
```

16. Quadrant program.

```
import java.util.Scanner;
public class QuestionSixteen {
   public static void main(String[] args) {
       Quad q = new Quad();
       q.readNumber();
       q.show();
   }
}
class Quad {
   private int angle;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           angle = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       if (angle >= 0 && angle <= 90) {
           System.out.println("Quadrant one");
       } else if (angle > 90 && angle <= 180) {
           System.out.println("Quadrant two");
       } else if (angle > 180 && angle <= 270) {
           System.out.println("Quadrant three");
       } else if (angle > 270 && angle <= 360) {
           System.out.println("Quadrant four");
       } else {
           System.out.println("Invalid angle");
       }
   }
}
```

17. Generate using while loop.
    a. 10, 20, 30, ...100
    b. 100, 95, 90, 85, ...5
    c. 5, 15, 25. 35, ...105
    d. 100, 90, 80, ...0
    e. 1, 2, 4, 8, 16, ...1024

```
public class QuestionSeventeen {
   public static void main(String[] args) {
       (new WPartA()).generate();
       (new WPartB()).generate();
       (new WPartC()).generate();
       (new WPartD()).generate();
       (new WPartE()).generate();
   }
}
abstract class BaseWhile {
   protected int i;
   abstract public void generate();
}
class WPartA extends BaseWhile {
   public void generate() {
       i = 10;
       while (i <= 100) {
           System.out.print(i);
           if (i != 100) {
               System.out.print(", ");
           }
           i += 10;
       }
       System.out.println("\n");
```

```
    }
}
class WPartB extends BaseWhile {
    public void generate() {
        i = 100;
        while (i >= 5) {
            System.out.print(i);
            if (i != 5) {
                System.out.print(", ");
            }
            i -= 5;
        }
        System.out.println("\n");
    }
}
class WPartC extends BaseWhile {
    public void generate() {
        i = 5;
        while (i <= 105) {
            System.out.print(i);
            if (i != 105) System.out.print(", ");
            i += 10;
        }
        System.out.println("\n");
    }
}
class WPartD extends BaseWhile {
    public void generate() {
        i = 100;
        while (i >= 0) {
            System.out.print(i);
            if (i != 0) System.out.print(", ");
            i -= 10;
        }
        System.out.println("\n");
    }
}
class WPartE extends BaseWhile {
    public void generate() {
        i = 1;
        while (i <= 1024) {
            System.out.print(i);
            if (i != 1024) System.out.print(", ");
            i *= 2;
        }
    }
}
```

18. Generate using for loop.
    a. 5, 15, 25, ...105
    b. 7, 14, 21, ...70
    c. 100, 90, 80, ...0

```
public class QuestionEighteen {
    public static void main(String[] args) {
        (new FPartA()).generate();
        (new FPartB()).generate();
        (new FPartC()).generate();
    }
}
abstract class BaseFor {
    protected int i;
    abstract public void generate();
}
class FPartA extends BaseFor {
    public void generate() {
        for (i = 5; i <= 105; i += 10) {
```

```
            System.out.print(i);
            if (i != 105) System.out.print(", ");
        }
        System.out.println("\n");
    }
}
class FPartB extends BaseFor {
    public void generate() {
        for (i = 7; i <= 70; i += 7) {
            System.out.print(i);
            if (i != 70) System.out.print(", ");
        }
        System.out.println("\n");
    }
}
class FPartC extends BaseFor {
    public void generate() {
        for (i = 100; i >= 0; i -= 10) {
            System.out.print(i);
            if (i != 0) System.out.print(", ");
        }
    }
}
```

19. Multiplication table.

```
public class QuestionNineteen {
    public static void main(String[] args) {
        MulTable mt = new MulTable();
        mt.generate();
    }
}
class MulTable {
    public void generate() {
        System.out.println("\t1\t2\t3\t4\t5\t6\t7\t8\t9");
        System.out.println("\t--\t--\t--\t--\t--\t--\t--\t--\t--");
        for (int i = 1; i <= 9; i++) {
            System.out.print(i + " |\t");
            for (int j = 1; j <= 9; j++) {
                System.out.print((i * j) + "\t");
            }
            System.out.println();
        }
    }
}
```

20. Multiplication table in reverse.

```
public class QuestionTwenty {
    public static void main(String[] args) {
        MulTableRev mt = new MulTableRev();
        mt.generate();
    }
}
class MulTableRev {
    public void generate() {
        System.out.println("\t9\t8\t7\t6\t5\t4\t3\t2\t1");
        System.out.println("\t--\t--\t--\t--\t--\t--\t--\t--\t--");
        for (int i = 9; i >= 1; i--) {
            System.out.print(i + " |\t");
            for (int j = 9; j >= 1; j--) {
                System.out.print((i * j) + "\t");
            }
            System.out.println();
        }
    }
}
```

21. Factorial of a number.

```
import java.util.Scanner;
public class QuestionTwentyOne {
   public static void main(String[] args) {
       Factorial f = new Factorial();
       f.readNumber();
       f.calculate();
   }
}
class Factorial {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void calculate() {
       int fact = 1;
       for (int i = 1; i <= num; i++) {
           fact *= i;
       }
       System.out.println("Factorial is " + fact);
   }
}
```

22. Sum up to the number.

```
import java.util.Scanner;
public class QuestionTwentyTwo {
   public static void main(String[] args) {
       SumUpTo sut = new SumUpTo();
       sut.readNumber();
       sut.sumUp();
   }
}
class SumUpTo {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void sumUp() {
       int sum = 0;
       for (int i = 1; i <= num; i++) {
           sum += i;
       }
       System.out.println("The sum is " + sum);
   }
}
```

23. Factors of a number.

```
import java.util.Scanner;
public class QuestionTwentyThree {
   public static void main(String[] args) {
       Factors f = new Factors();
       f.readNumber();
       f.getFactors();
   }
}
class Factors {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void getFactors() {
       for (int i = 1; i <= num; i++) {
           if (num % i == 0) {
               System.out.print(i);
               if (i != num) System.out.print(", ");
           }
       }
   }
}
```

24. Sum of digits of a number.

```
import java.util.Scanner;
public class QuestionTwentyFour {
   public static void main(String[] args) {
       SumOfDigits sod = new SumOfDigits();
       sod.readNumber();
       sod.showSum();
   }
}
class SumOfDigits {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void showSum() {
       int sum = 0;
       String strNum = (new Integer(num)).toString();
       for (int i = 0; i < strNum.length(); i++) {
           sum += Integer.parseInt((new Character(strNum.charAt(i))).toString());
       }
       System.out.println("The sum of digits: " + sum);
   }
}
```

25. Check if a number is palindrome or not.

```
import java.util.Scanner;
public class QuestionTwentyFive {
   public static void main(String[] args) {
       Palindrome p = new Palindrome();
       p.readNumber();
       p.isPalindrome();
   }
}
class Palindrome {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void isPalindrome() {
       int numRev = reverse();
       if (num == numRev) {
           System.out.println("Number is palindrome.");
       } else {
           System.out.println("Number is not palindrome");
       }
   }
   private int reverse() {
       String strNum = (new Integer(num)).toString();
       String strNumRev = "";
       for (int i = strNum.length() - 1; i >= 0; i--) {
           strNumRev += (new Character(strNum.charAt(i))).toString();
       }
       return Integer.parseInt(strNumRev);
   }
}
```

26. Check if a number is Armstrong.

```
import java.util.Scanner;
public class QuestionTwentySix {
   public static void main(String[] args) {
       Armstrong a = new Armstrong();
       a.readNumber();
       a.result();
   }
}
class Armstrong {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   private int sums() {
       String strNum = (new Integer(num)).toString();
       int times = strNum.length();
       int sum = 0;
       for (int i = 0; i < strNum.length(); i++) {
           int digit = Integer.parseInt((new Character(strNum.charAt(i))).toString());
           int pro = 1;
           for (int j = 0; j < times; j++) {
               pro *= digit;
```

```
            }
            sum += pro;
        }
        return sum;
    }
    public void result() {
        int sumDigits = sums();
        if (sumDigits == num) {
            System.out.println("Armstrong number.");
        } else {
            System.out.println("Not Armstrong.");
        }
    }
}
```

27. Check if a number is prime or not.

```
import java.util.Scanner;
public class QuestionTwentySeven {
    public static void main(String[] args) {
        Prime p = new Prime();
        p.readNumber();
        p.isPrime();
    }
}
class Prime {
    private int num;
    public void readNumber() {
        Scanner s = new Scanner(System.in);
        try {
            System.out.print("Enter number: ");
            num = s.nextInt();
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    public void isPrime() {
        boolean prime = true;
        for (int i = 2; i < num; i++) {
            if (num % i == 0) {
                prime = false;
                break;
            }
        }
        prime = prime && num != 0 && num != 1;
        if (prime) {
            System.out.println(num + " is a prime number.");
        } else {
            System.out.println(num + " is not a prime number.");
        }
    }
}
```

28. Check if a number is perfect or not.

```
import java.util.Scanner;
public class QuestionTwentyEight {
    public static void main(String[] args) {
        Perfect p = new Perfect();
        p.readNumber();
        p.show();
    }
}
class Perfect {
    private int num;
    public void readNumber() {
        Scanner s = new Scanner(System.in);
        try {
```

```
            System.out.print("Enter number: ");
            num = s.nextInt();
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    private int sumDivisors() {
        int sum = 0;
        for (int i = 1; i < num; i++) {
            if (num % i == 0) {
                sum += i;
            }
        }
        return sum;
    }
    public void show() {
        if (num > 0 && sumDivisors() == num) {
            System.out.println(num + " is a PERFECT number.");
        } else {
            System.out.println(num + " is NOT a PERFECT number.");
        }
    }
}
```

29. Reverse of a number.

```
import java.util.Scanner;
public class QuestionTwentyNine {
    public static void main(String[] args) {
        Reverse r = new Reverse();
        r.readNumber();
        r.show();
    }
}
class Reverse {
    private int num;
    public void readNumber() {
        Scanner s = new Scanner(System.in);
        try {
            System.out.print("Enter number: ");
            num = s.nextInt();
        } catch (Exception e) {
            System.out.println("Data type mismatch.");
        }
    }
    public void show() {
        String strNum = (new Integer(num)).toString();
        String rev = "";
        for (int i = strNum.length() - 1; i >= 0; i--) {
            rev += (new Character(strNum.charAt(i))).toString();
        }
        num = Integer.parseInt(rev);
        System.out.println("Reverse: " + num);
    }
}
```

30. Read a number and find biggest digit.

```
import java.util.Scanner;
public class QuestionThirty {
   public static void main(String[] args) {
       BiggestDigit bd = new BiggestDigit();
       bd.readNumber();
       bd.show();
   }
}
class BiggestDigit {
   private int num;
   public void readNumber() {
       Scanner s = new Scanner(System.in);
       try {
           System.out.print("Enter number: ");
           num = s.nextInt();
       } catch (Exception e) {
           System.out.println("Data type mismatch.");
       }
   }
   public void show() {
       String strNum = (new Integer(num)).toString();
       int b = 0;
       for (int i = 0; i < strNum.length(); i++) {
           int digit = Integer.parseInt((new Character(strNum.charAt(i))).toString());
           if (digit > b) {
               b = digit;
           }
       }
       System.out.println("Biggest digit: " + b);
   }
}
```