Homework 2 – Computer Science

Divisors -

```
public class Divisors
{
	public static void main ( String[]args )
	{
		int insertedNum = Integer.parseInt(args[0]);
		if ( insertedNum > 0 )
		{

			for ( int i = 1; i <= insertedNum; i++ )
			{
				if ( insertedNum % i == 0 )
				{
					System.out.println ( i );
				}
			}
		}
		else
		{
			for ( int i = -1; i >= insertedNum; i-- )
			{
					if ( insertedNum % i == 0 )
				{
					System.out.println ( i );
				}
			}
		}
	}
}
```

Reverse –

```
public class Reverse
{
      public static void main ( String[]args )
      {
            String word = args[0];
            char middle = 0;
            for ( int i = word.length() - 1; i >= 0; i-- )
            {
                  System.out.print ( word.charAt(i) );
                  if ( i == word.length()/2  )
                  {
                        if ( word.length() % 2 == 1 )
                        {
                              middle = word.charAt(i);
                        }
                        else
                        {
                              middle = word.charAt( i -1 );
                        }
                  }
            }
            System.out.println();
            System.out.println("The middle character is " + middle );
      }
}
```

InOrder –

```
public class InOrder
{
      public static void main ( String[]args )
      {
            int min = 0;
            for ( int i = 0; i <= 10; i++ )
            {
                  int randomInt = (int)(Math.random()*(10));
                  if ( randomInt >= min )
                  {
                        min = randomInt;
                        System.out.print ( min + " " );
                  }
            }
      }
}
```

Perfect –

```
public class Perfect
{
	public static void main ( String[]args )
	{
		int numchoosen = Integer.parseInt(args[0]);
		int sum = 0;
		for( int i = 1; i < numchoosen; i++ )
		{
			if( numchoosen % i == 0 )
			{
				sum = sum + i;
			}
		}
		if ( sum == numchoosen )
		{
			System.out.print( numchoosen + " is a perfect number since " + numchoosen + " = 1" );
			for ( int i = 2; i < numchoosen; i++ )
			{
				if ( numchoosen % i == 0 )
				{
					System.out.print(" + " + i);
				}
			}
		}
		else
		{
			System.out.println(numchoosen+" is not a perfect number");
		}
```

```
        }
    }
```

DamkaBoard –

```
public class DamkaBoard
{
      public static void main ( String[]args )
      {
            int size = Integer.parseInt ( args[0] );
            for ( int i = 0; i < size; i++ )
            {
                  for ( int j = 0; j < size; j++ )
                  {
                        if ( i % 2 == 0 )
                        {
                              System.out.print( "*" + " " );
                        }
                        else
                        {
                              System.out.print( " " + "*" );
                        }
                  }
                  System.out.println();
            }
      }
}
```

OneOfEach –

```
public class OneOfEach
{
	public static void main ( String[]args )
	{
		double percent = 0;
		int count = 0;
		boolean isBoy = false;
		boolean isGirl = false;
		String boy = "b";
		String girl = "g";
		while ( ( isBoy != true )  || ( isGirl != true ) )
		{
			percent = Math.random();
			if ( percent > 0.5 )
			{
				isBoy = true;
				System.out.print ( boy + " " );
			}
			else
			{
				isGirl = true;
				System.out.print ( girl + " " );
			}
			if ( isBoy == true && isGirl == false )
			{
				count++;
			}
			else if ( isBoy == false && isGirl == true )
			{
```

```
                    count++;
                }
                else
                {
                    count++;
                    System.out.println();
                    System.out.println ( "You made it... and you
now have " + count + " children." );
                }
            }
        }
}
```

OneOfEachStats1 –

```
public class OneOfEachStats1
{
	public static void main ( String[]args )
	{
		int T = Integer.parseInt ( args[0] );
		int count = 0;
		int amount = 0;
		int count2 = 0;
		int count3 = 0;
		int count4 = 0;
		double average = 0;
		double percent = 0;
		boolean isBoy;
		boolean isGirl;
		for ( int i = 1; i <= T; i++ )
		{
			isBoy = false;
			isGirl = false;
			count = 0;
			while ( ( isBoy != true )  || ( isGirl != true ) )
			{
				percent = Math.random();
				if ( percent > 0.5 )
				{
					isBoy = true;
				}
				else
				{
					isGirl = true;
```

```
            }
            if ( isBoy == true && isGirl == false )
            {
                  count++;
            }
            else if ( isBoy == false && isGirl == true )
            {
                  count++;
            }
            else
            {
                  count++;
            }
      }
      if ( count == 2 )
      {
            count2++;
      }
      else if ( count == 3 )
      {
            count3++;
      }
      else
      {
            count4++;
      }
      amount = amount + count;
}
average = (double)amount/T;
```

```
            System.out.println( "Average " + average + " children to
get at least one of each gender." );

            System.out.println( "Number of families with 2 children:
" + count2 );

            System.out.println( "Number of families with 3 children:
" + count3 );

            System.out.println( "Number of families with 4 children
or more: " + count4 );

            if ( count2 > count3 && count2 > count4 )

            {

                  System.out.println( "The most common number of
children is 2" );

            }

            else if ( count3 > count2 && count3 > count4 )

            {

                  System.out.println( "The most common number of
children is 3" );

            }

            else if ( count4 > count3 && count4 > count2 )

            {

                  System.out.println( "The most common number of
children is 4 or more" );

            }

            else

            {

                  System.out.println( "There is a draw" );

            }

      }

}
```

OneOfEachStats –

```
import java.util.Random;
public class OneOfEachStats
{
public static void main ( String[]args )
      {
            int T = Integer.parseInt ( args[0] );
            int seed = Integer.parseInt( args[1] );
            Random generator = new Random(seed);
            int count = 0;
            int amount = 0;
            int count2 = 0;
            int count3 = 0;
            int count4 = 0;
            double average = 0;
            double percent = 0;
            boolean isBoy;
            boolean isGirl;
            for ( int i = 1; i <= T; i++ )
            {
                  isBoy = false;
                  isGirl = false;
                  count = 0;
                  while ( ( isBoy != true )  || ( isGirl != true ) )
                  {
                        percent = generator.nextDouble();
                        if ( percent > 0.5 )
                        {
                              isBoy = true;
                        }
```

```
        else
        {
            isGirl = true;
        }
        if ( isBoy == true && isGirl == false )
        {
            count++;
        }
        else if ( isBoy == false && isGirl == true )
        {
            count++;
        }
        else
        {
            count++;
        }
    }
    if ( count == 2 )
    {
        count2++;
    }
    else if ( count == 3 )
    {
        count3++;
    }
    else
    {
        count4++;
    }
    amount = amount + count;
```

```
            }
            average = (double)amount/T;
            System.out.println( "Average: " + average + " children to
get at least one of each gender." );
            System.out.println( "Number of families with 2 children:
" + count2 );
            System.out.println( "Number of families with 3 children:
" + count3 );
            System.out.println( "Number of families with 4 or more
children: " + count4 );
            if ( count2 > count3 && count2 > count4 )
            {
                  System.out.println( "The most common number of
children is 2." );
            }
            else if ( count3 > count2 && count3 > count4 )
            {
                  System.out.println( "The most common number of
children is 3." );
            }
            else if ( count4 > count3 && count4 > count2 )
            {
                  System.out.println( "The most common number of
children is 4 or more." );
            }
            else
            {
                  System.out.println( "There is a draw" );
            }
      }
}
```