Solution of Assignment 6

Question 1.

```
import java.util.*;

class Q1
{
	public static int additionSimple(int x, int y)
	{
		return x + y;
	}
	public static int subtractionSimple(int x, int y)
	{
		return x - y;
	}
	public static int multiplicationSimple(int x, int y)
	{
		return x * y;
	}
	public static double divisionSimple(int x, int y)
	{
		if(x!=0)
			return (double)y / x;
		else
			return 0;
	}
	public static int remainderSimple(int n, int m)
	{
		return n % m;
	}
	public static double squareRootSimple(int n)
	{
		if(n>=0)
			return Math.sqrt(n);
		else
			return 0.0;
	}
	public static void main(String[] args)
```

```
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter first number: ");
		int a = sc.nextInt();
		System.out.println("Enter first number: ");
		int b = sc.nextInt();
		System.out.println("Enter operation (+, -, *, /, %, r for root): ");
		char c = sc.next().charAt(0);
		switch(c)
		{
			case '+': System.out.println("Addition value of "+a+" and "+b+" is
"+additionSimple(a,b)); break;
			case '-': System.out.println("Subtraction value of "+a+" and "+b+" is
"+subtractionSimple(a,b)); break;
			case '*': System.out.println("Multiplication value of "+a+" and "+b+"
is "+multiplicationSimple(a,b)); break;
			case '/': System.out.println("Division value of "+b+" by "+a+" is
"+divisionSimple(a,b)); break;
			case '%': System.out.println("Remainder value of "+a+" by "+b+" is
"+remainderSimple(a,b)); break;
			case 'r': System.out.println("Square root of "+a+" is
"+squareRootSimple(a)); break;
			default: System.out.println("Wrong input");
		}
	}
}
```

Question 2.

```
class Q2
{
	public static int getPentagonalNumber(int n)
	{
		return n*(3*n-1)/2;
	}
	public static void main(String[] args)
	{
		System.out.println("first 100 pentagonal numbers with 10 numbers on
each line");
```

```
		for(int i = 1;i<=100;i++)
		{
			System.out.print(getPentagonalNumber(i)+" ");
			if(i%10==0)
				System.out.println();
		}
	}
}
```

Question 3.

```
import java.util.*;

class Q3
{
	public static int reverse(int number)
	{
		int reversal = 0;
		while(number!=0)
		{
			reversal = reversal*10 + number%10;
			number /=10;
		}
		return reversal;
	}
	public static boolean isPalindrome(int number)
	{
		if(number==reverse(number))
			return true;
		else
			return false;
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a number: ");
		int no = sc.nextInt();
		if(isPalindrome(no))
			System.out.println(no+" is a palindrome number");
```

```
                else
                        System.out.println(no+" is not a palindrome number");
        }
}
```

Question 4.

```
class Q4
{
        public static int numberOfDaysInAYear(int year)
        {
                if(year%400==0 || (year%4==0 && year%100!=0))
                        return 366;
                else
                        return 355;
        }
        public static void main(String[] args)
        {
                for(int i = 2000;i<=2020;i++)
                        System.out.println("Number of days of year "+i+" is
"+numberOfDaysInAYear(i));
        }
}
```

Question 5.

```
import java.util.*;

class Q5
{
        public static double area(int n, double side)
        {
                return (n*Math.pow(side,2))/(4*Math.tan(Math.PI/n));
        }
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the number of side: ");
```

```
                int n = sc.nextInt();
                System.out.println("Enter the value of side: ");
                 double side = sc.nextInt();
                 System.out.println("Area of a regular polygon is "+area(n, side));
        }
}
```

Question 6.

```
import java.util.*;

class H6
{
        public static int count(String str, char a)
        {
                int count = 0;
                for(int i = 0;i<str.length();i++)
                {
                        if(str.charAt(i)==a)
                        count++;
                }
                return count;
         }
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the string: ");
                String str = sc.next();
                System.out.println("Enter the search character: ");
                char c = sc.next().charAt(0);
                System.out.println(c+" occur "+count(str,c)+" time(s) in the string "+str);
        }
}
```

Question 7.

```
import java.util.*;
```

```
class Q7
{
	public static int count(String str)
	{
		int count = 0;
		for(int i = 0;i<str.length();i++)
		{
if(str.charAt(i)=='a'||str.charAt(i)=='A'||str.charAt(i)=='e'||str.charAt(i)=='E'||str.charAt(i)=='i'
||str.charAt(i)=='I'||str.charAt(i)=='o'||str.charAt(i)=='O'||str.charAt(i)=='u'||str.charAt(i)=='U'
)
		count++;
		}
		return count;
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the string: ");
		String str = sc.nextLine();
		System.out.println(" Number of vowels in "+str+" is "+count(str));
	}
}
```

Question 8.

```
import java.util.*;

class Q8
{
	public static boolean isPalindrome(String str)
	{
		int len = str.length();
		for(int i = 0;i<len/2;i++)
		{
			if(str.charAt(i)!=str.charAt(len-i-1))
				return false;
		}
		return true;
```

```
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the string: ");
		String str = sc.nextLine();
		if(isPalindrome(str))
			System.out.println(str+" is a palindrome string");
		else
		System.out.println(str+" is not a palindrome string");
	}
}
```

Question 9.

```
import java.util.*;

class HelloWorld
{
	public static boolean passwordChecker(String str)
	{
		boolean b = true;
		if(str.length()>=8)
		{
			int digit_count = 0;
			for(int i=0;i<str.length();i++)
			{
				if((str.charAt(i)>='A' && str.charAt(i)<='Z') || (str.charAt(i)>='a'
&& str.charAt(i)<='z') || (str.charAt(i)>='0' && str.charAt(i)<='9'))
				{
					if(str.charAt(i)>='0' && str.charAt(i)<='9')
					{
						digit_count++;
					}
				}
				else
				{
					b=false;
					break;
```

```
                        }
                    }
                    if(digit_count>=2)
                        b=true;
                    else
                        b=false;
                }
                else
                    b=false;
                return b;
        }
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter your password: ");
                String str = sc.next();
                if(passwordChecker(str))
                    System.out.println("Valid password");
                else
                    System.out.println("Invalid password");
        }
}
```

Question 10.

```
import java.util.*;

class Q10
{
        public static double area(int x, int y, int z)
        {
                double s = (x+y+z)/2.0;
                return Math.sqrt(s*(s-x)*(s-y)*(s-z));
        }
        public static int area(int x, int y)
        {
                return x*y;
        }
        public static int area(int x)
```

```
	{
		return x*x;
	}
	public static double area(double r)
	{
		return Math.PI*Math.pow(r,2);
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("press 1 for triangle, 2 for square, 3 for circle, and 4 for
rectangle");
		System.out.println("Enter your choice: ");
		int c = sc.nextInt();
		int x, y, z;
		double r;
		switch(c)
		{
			case 1: System.out.println("Enter the value of three sides of
triangle: ");
				x = sc.nextInt();
				y = sc.nextInt();
				z = sc.nextInt();
				System.out.println("Area of triangle is : "+area(x,y,z));
				break;
			case 2: System.out.println("Enter the side of : square");
				x = sc.nextInt();
				System.out.println("Area of triangle is : "+area(x));
				break;
			case 3: System.out.println("Enter the radius of circle: ");
				r = sc.nextDouble();
				System.out.println("Area of triangle is : "+area(r));
				break;
			case 4: System.out.println("Enter the value of length and breadth of
rectangle: ");
			x = sc.nextInt();
			y = sc.nextInt();
			System.out.println("Area of triangle is : "+area(x,y));
			break;
			default: System.out.println("Wrong Input");
```

```
		}
	}
}
```

Home Assignment

Question 1.

```
import java.util.*;

class HQ1
{
	public static char nonRepeatedChar(String str)
	{
		int pos=0;
		for(int i=0;i<str.length();i++)
		{
			pos = str.indexOf(str.charAt(i));
			if(pos>=0)
			{
				pos = str.indexOf(str.charAt(i),pos+1);
				if(pos==-1)
					return str.charAt(i);
			}
		}
		return ' ';
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("Enter a string: ");
		String str = sc.next();
		char c = nonRepeatedChar(str);
		if(c!=' ')
			System.out.println("Non repeating character is:
"+nonRepeatedChar(str));
		else
			System.out.println("No such character are present");
	}
}
```

Question 2.

```
import java.util.*;
public class HQ2
{
	public static double volume(int s)
	{
		return Math.pow(s, 3);
	}
	public static double volume(double r)
	{
		return (4.0/3)*Math.PI*Math.pow(r, 3);
	}
	public static int volume(int l, int b, int h)
	{
		return l*b*h;
	}
	public static void main(String[] args)
	{
		Scanner sc = new Scanner(System.in);
		System.out.println("press 1 for cube, 2 for sphere, and 3 for cuboid");
		System.out.println("Enter your choice: ");
		int c = sc.nextInt();
		switch(c)
		{
			case 1: System.out.println("Enter the side of cube");
				int s = sc.nextInt();
				System.out.println("volume of cube is: "+volume(s));
				break;
			case 2: System.out.println("Enter the radius of sphere: ");
				double r = sc.nextDouble();
				System.out.println("volume of sphere is: "+volume(r));
				break;
			case 3: System.out.println("Enter the value of three sides of cuboid:
");
				int x = sc.nextInt();
				int y = sc.nextInt();
				int z = sc.nextInt();
				System.out.println("volume of cuboid is: "+volume(x,y,z));
```

```
                        break;
                default: System.out.println("Wrong Input");
            }
        }
}
```

Question 3.

```
import java.util.*;

public class HQ3
{
        public static char middleCharacter(String str)
        {
                return str.charAt(str.length()/2);
        }
        public static void main(String[] args)
        {
                Scanner sc = new Scanner(System.in);
                System.out.println("Enter the String: ");
                String str = sc.next();
                System.out.println("Middle character of "+str+" is "+middleCharacter(str));
        }
}
```

Question 4.

```
import java.util.*;

class HQ4
{
        public static int wordCount(String str)
        {
                int count = 0;
                for(int i=0;i<str.length();i++)
                {
                        if(str.charAt(i)==' ')
                                count++;
                }
```

```
            return count+1;
        }
        public static void main(String[] args)
        {
            Scanner sc = new Scanner(System.in);
            System.out.println("Enter the String: ");
            String str = sc.nextLine();
            System.out.println("Number of works of "+str+" is "+wordCount(str));
        }
}
```

Question 5.

```
import java.util.*;
public class HQ5
 {
        public static boolean isConsecutive(int x, int y, int z)
        {
            if(x==y+1 && y==z+1)
                return true;
            else if(x==y-1 && y==z-1)
                return true;
            else
                return false;
        }
        public static void main(String[] args)
        {
            Scanner sc = new Scanner(System.in);
            System.out.println("Input the first number: ");
            int x = sc.nextInt();
            System.out.println("Input the second number: ");
            int y = sc.nextInt();
            System.out.println("Input the third number: ");
            int z = sc.nextInt();
            System.out.println("Check whether the three said numbers are
consecutive or not!");
            System.out.println(isConsecutive(x, y, z));
        }
}
```