Project1:

```
import java.util.*;
public class Project3_1 {
	public static void main(String[] args){
		Scanner read = new Scanner(System.in);
		//String[] output = new String [3];
		char flag=0;
		do{
			String input, date;

			System.out.print("Enter the today's date(mm/dd/yyyy): ");
			input = read.nextLine();
			String[] output = readDate(input);
			System.out.println("Today is " + output[0] + "
"+output[1]+", " + output[2]);
			System.out.print("CONTINUE(y/n)? ");
			flag = read.nextLine().charAt(0);
		}while(flag == 'y' || flag == 'Y');
	}

	private static String[] readDate(String input){
		String month = new String();
		String date = new String();
		String year = new String();
		String[] result = new String[3];
		//String read ="";
		int i=0;
		char ch = input.charAt(i);
		do{
			month+=ch;
			ch = input.charAt(++i);

		}while(ch!='/');
		//System.out.println("month: " + month);
		month = convertMonth(month);
		ch = input.charAt(++i);
		do{
			date+=ch;
			ch = input.charAt(++i);

		}while(ch!='/');
		//System.out.println("Date: " + date);
		date = convertDate(date);
		//System.out.println("index is "+ i + " Token is " +
input.charAt(i));
```

```
	i++;
	while(i<input.length()){
		ch = input.charAt(i++);
		year+=ch;
	}
	//System.out.println("Year: " + year);
	result[0] = month;
	result[1] = date;
	result[2] = year;
	return result;
}

private static String convertMonth(String month){
	int mon = Integer.valueOf(month);
	String monthString = new String();
	switch(mon){
		case 1: monthString = "Jan"; break;
		case 2: monthString = "Feb"; break;
		case 3: monthString = "Mar"; break;
		case 4: monthString = "Apr"; break;
		case 5: monthString = "May"; break;
		case 6: monthString = "June"; break;
		case 7: monthString = "July"; break;
		case 8: monthString = "Aug"; break;
		case 9: monthString = "Sept"; break;
		case 10: monthString = "Oct"; break;
		case 11: monthString = "Nov"; break;
		case 12: monthString = "Dec"; break;
		default:
			System.out.println("Invalid Month");
			break;

	}
	return monthString;
}

private static String convertDate(String date){
	int dateInt = Integer.valueOf(date);
	String dateString = new String();
	if(dateInt == 1){
		dateString  = dateInt + "st";
	}else if(dateInt == 2){
		dateString  = dateInt + "nd";
	}else if(dateInt == 3){
		dateString  = dateInt + "rd";
	}else if(dateInt < 31 && dateInt > 0){
```

```
                dateString = dateInt + "th";
            }else{
                System.out.println("Invalid Date");
            }
            return dateString;
      }
}

//**********output*******
Enter the today's date(mm/dd/yyyy): 11/08/2016
Today is Nov 8th, 2016
CONTINUE(y/n)? y
Enter the today's date(mm/dd/yyyy): 1/30/2000
Today is Jan 30th, 2000
CONTINUE(y/n)? n


Project2:
import java.util.*;
// Project3_2
public class FromLetterWriter {
      public static void main(String[] args){
            Scanner read = new Scanner(System.in);
            String firstName, lastName;
            char gender;
            // first method
            System.out.println("(First Method) Enter your last name: ");
            lastName = read.nextLine();
            System.out.println("(First Method) What's your gender(m/f):
");
            gender = read.next().charAt(0);
            String temp = read.nextLine();
            displaySalutation(lastName,gender);
            System.out.println("(First Method)Thank you for your recent
order.");

            // second method
            System.out.println("(Second Method) Enter your first name: ");
            firstName = read.nextLine();
            System.out.println("(Second Method) Enter your last name: ");
            lastName = read.nextLine();
            displaySalutation(firstName, lastName);
            System.out.println("(Second Method)Thank you for your recent
order.");

      }
```

```
	// parameter: take  customer's last name
	private static void displaySalutation(String lastName, char gender){
		gender = Character.toLowerCase(gender);
		if(gender == 'm'){
			System.out.println("Dear Mr." + lastName);
		} else {
			System.out.println("Dear Mrs."+ lastName);
		}
	}

	// parameter: take two string first name and last name
	private static void displaySalutation(String firstName, String
lastName){
		System.out.println("Dear " + firstName + " " + lastName);

	}

}

//*******output**********
(First Method) Enter your last name:
Sun
(First Method) What's your gender(m/f):
m
Dear Mr.Sun
(First Method)Thank you for your recent order.
(Second Method) Enter your first name:
yijie
(Second Method) Enter your last name:
sun
Dear yijie sun
(Second Method)Thank you for your recent order.

Billing:
import java.util.*;
public class Billing {
	public static void main(String[] args){
		Scanner read = new Scanner(System.in);
		double price, coupon;
		int quantity;
		char flag=0;
		String temp = new String();

		// first method
		System.out.println("first method");
```

```
            System.out.print("Enter the price of each book: ");
            price = read.nextDouble();
            System.out.printf("Your total pay is %.2f",
computeBill(price));
            System.out.println();

            // second method
            System.out.println("second method");
            System.out.print("Enter the number of books? ");
            quantity = read.nextInt();
            System.out.print("Enter the price of each book: ");
            price = read.nextDouble();
            System.out.printf("Your total pay is %.2f", computeBill(price,
quantity));
            System.out.println();

            // third method
            System.out.println("third method");
            System.out.print("Enter the number of books? ");
            quantity = read.nextInt();
            System.out.print("Enter the price of each book: ");
            price = read.nextDouble();
            System.out.print("Any coupon(y/n) ");
            flag = read.next().charAt(0);
            temp = read.nextLine();
            if(flag == 'y' || flag == 'Y'){
                  System.out.print("How much? ");
                  coupon = read.nextDouble();
            }else{
                  coupon = 0.0;
            }
            System.out.printf("Your total pay is %.2f", computeBill(price,
quantity, coupon));




      }

      private static double computeBill(double price){
            return price * 1.08;
      }

      private static double computeBill(double price, int quantity){
            return price * quantity * 1.08;
      }
```

```
	private static double computeBill(double price, int quantity, double
coupon){
		return price*quantity*1.08*(1-coupon);
	}
}
```

**Project4:**

```
import java.util.Scanner;
public class Project3_4 {
	public static void main(String[] args){
		Scanner read = new Scanner(System.in);
		double a, b, c;
		System.out.print("Three length of a triangle: ");
		a = read.nextDouble(); b = read.nextDouble(); c =
read.nextDouble();
		Trangle trangle = new Trangle();
		System.out.println("Perimeter = "+
trangle.computePerimeter(a,b,c));
		System.out.println("Area = "+ trangle.computeArea(a,b,c));
	}
}

import java.util.*;
public class Trangle {
	static double computePerimeter(double a, double b, double c){
		return (a+b+c)/2;
	}

	static double computeArea(double a, double b, double c){
		double p = computePerimeter(a,b,c);
		return Math.sqrt(p*(p-a)*(p-b)*(p-c));
	}
}
```

```
/******output*********
Three length of a triangle: 3 4 5
Perimeter = 6.0
Area = 6.0
/
```

Project5:

```
public class Project3_5 {
```

```
	public static void main(String[] args){

		System.out.println(compute(10));
	}

	private static double compute(int n){
		long sum=0;
		System.out.println("3^"+n+" = " +Math.pow(3, n));
		if(n == 3)
			return Math.pow(3, n);
		return  sum + Math.pow(3, n)+compute(--n);
	}
}
```

//output:

```
3^10 = 59049.0
3^9 = 19683.0
3^8 = 6561.0
3^7 = 2187.0
3^6 = 729.0
3^5 = 243.0
3^4 = 81.0
3^3 = 27.0
88560.0
```