**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