**1.Swapping of two numbers using two abstract class.**

Code:

**abstract class Swap{**

**abstract void swapno(int x,int y,int z);**

**}**

**class Swapping extends Swap{**

**void swapno(int x,int y,int z) {**

**z=x;**

**x=y;**

**y=z;**

**System.*out*.println(x);**

**System.*out*.println(y);**

**}**

**}**

**public class AbstractDemo {**

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

**// TODO Auto-generated method stub**

**Swapping o=new Swapping();**

**o.swapno(5, 2, 0);**

**}**

**}**

**2.Write a program in Odd or Even,Simple interest,Fibonacci series using Dynamic method dispatch.**

Code:

**import java.util.\*;**

**class A{**

**Scanner sc=new Scanner(System.*in*);**

**void display() {**

**System.*out*.println("Enter the number");**

**int n=sc.nextInt();**

**if(n%2==0)**

**System.*out*.println(n+"is Even");**

**else**

**System.*out*.println(n+"is Odd");**

**}**

**}**

**class B extends A{**

**void display() {**

**int a=0,b=1,c=0;**

**System.*out*.println("Enter the limit:");**

**int num=sc.nextInt();**

**System.*out*.println(a);**

**System.*out*.println(b);**

**for(int i=2;i<num;i++) {**

**c=a+b;**

**a=b;**

**b=c;**

**System.*out*.println(c);**

**}**

**}**

**}**

**class C extends B{**

**void display() {**

**System.*out*.println("Enter the principle amount:");**

**int p=sc.nextInt();**

**System.*out*.println("Enter the no of years:");**

**int n=sc.nextInt();**

**System.*out*.println("Enter the rate of interest:");**

**int r=sc.nextInt();**

**int si=(p\*n\*r)/100;**

**System.*out*.println("The simple interest="+si);**

**}**

**}**

**public class Main {**

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

**// TODO Auto-generated method stub**

**A a=new A();**

**B b=new B();**

**C c=new C();**

**A ref;**

**ref=a;**

**a.display();**

**ref=b;**

**b.display();**

**ref=c;**

**c.display();**

**}**

**}**

**3.Binary search using constructor**

Code:

**import java.util.\*;**

**public class Binarysearch {**

**int a[];**

**int n;**

**Binarysearch(int []arr,int size){**

**a=arr;**

**n=size;**

**}**

**int bsearch(int x) {**

**int low=0,high=n-1;**

**while(low<=high) {**

**int mid=(low+high)/2;**

**if(a[mid]==x) {**

**return mid;**

**}**

**else if(a[mid]>x){**

**high=mid-1;**

**}**

**else**

**{**

**low=mid+1;**

**}**

**}**

**return -1;**

**}**

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

**// TODO Auto-generated method stub**

**Scanner sc=new Scanner(System.*in*);**

**System.*out*.println("\t\t\tBinary search");**

**System.*out*.println("Enter the limit:");**

**int n=sc.nextInt();**

**System.*out*.println("Enter the values:");**

**int a[]=new int[n];**

**for(int i=0;i<n;i++) {**

**a[i]=sc.nextInt();**

**}**

**System.*out*.println("Enter the search value:");**

**int se=sc.nextInt();**

**Binarysearch obj=new Binarysearch(a,n);**

**int res=obj.bsearch(se);**

**if(res==-1) {**

**System.*out*.println("Element not found");**

**}**

**else {**

**System.*out*.println("Element found");**

**}**

**}**

**}**

**4.Write a program in Automarfic number,Strong number using Constructor overloading.**

Code:

**import java.util.\*;**

**public class Overloading {**

**Overloading(){**

**Scanner sc=new Scanner(System.*in*);**

**System.*out*.println("Enter the element:");**

**int n=sc.nextInt();**

**int t,m=1;**

**t=n;**

**while(n>0) {**

**m\*=10;**

**n/=10;**

**}**

**if((t\*t)%m==t) {**

**System.*out*.println("Automarfic number");**

**}**

**else {**

**System.*out*.println("Not a automarfic number");**

**}**

**}**

**Overloading(int a,int sum){**

**int r,i,p;**

**int num=a;**

**while(num!=0) {**

**i=1;**

**p=1;**

**r=num%10;**

**while(i<=r) {**

**p\*=i;**

**i++;**

**}**

**sum+=p;**

**num/=10;**

**}**

**if(a==sum)**

**System.*out*.println("Strong number");**

**else**

**System.*out*.println("Not a strong number");**

**}**

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

**Overloading obj=new Overloading();**

**Scanner sc=new Scanner(System.*in*);**

**System.*out*.println("Enter the number");**

**int a=sc.nextInt();**

**int sum=0;**

**Overloading obj1=new Overloading(a,sum);**

**}**

**}**

**5.Stack using array**

Code:

**import java.util.\*;**

**public class Stk {**

**Scanner sc=new Scanner(System.*in*);**

**int n=3;**

**int stack[]=new int[n],top=-1,x,i;**

**void push() {**

**if(top==n-1)**

**System.*out*.println("Stack overflow");**

**else {**

**System.*out*.println("Enter the element to push");**

**x=sc.nextInt();**

**top++;**

**stack[top]=x;**

**System.*out*.println("the value pushed successfully");**

**}**

**}**

**void pop(){**

**if(top==-1)**

**System.*out*.println("Stack overflow");**

**else {**

**System.*out*.println(stack[top]+"is poped");**

**top--;**

**}**

**}**

**void display() {**

**if(top==-1)**

**System.*out*.println("Stack is empty");**

**else {**

**for(i=top;i>=0;i--) {**

**System.*out*.println(stack[i]);**

**}**

**}**

**}**

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

**// TODO Auto-generated method stub**

**int j=1;**

**Stk obj=new Stk();**

**while(j==1) {**

**System.*out*.println("\t\tStack operations using array");**

**Scanner sc=new Scanner(System.*in*);**

**System.*out*.println("Enter the choice");**

**int choice=sc.nextInt();**

**switch(choice) {**

**case 1:**

**obj.push();**

**break;**

**case 2:**

**obj.pop();**

**break;**

**case 3:**

**obj.display();**

**break;**

**case 4:**

**System.*exit*(0);**

**default:**

**System.*out*.println("Invalid choice");**

**}**

**}**

**}**

**}**

**6.Write a program in duplicate numbers removal,sum of digits using recursion,using method overloading.**

Code:

**import java.util.\*;**

**import java.io.\*;**

**public class Load**

**{**

**int meth(int n)**

**{**

**if(n==0)**

**return 0;**

**return(n%10+meth(n/10));**

**}**

**int meth(int arr[],int n)**

**{**

**if (n == 0 || n == 1)**

**return n;**

**int[] temp = new int[n];**

**int j = 0;**

**for (int i = 0; i < n - 1; i++)**

**if (arr[i] != arr[i + 1])**

**temp[j++] = arr[i];**

**temp[j++] = arr[n - 1];**

**for (int i = 0; i < j; i++)**

**arr[i] = temp[i];**

**return j;**

**}**

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

**// TODO Auto-generated method stub**

**Scanner sc=new Scanner(System.*in*);**

**Load obj=new Load();**

**System.*out*.println("enter the value for to find sum of digits:");**

**int x=sc.nextInt();**

**int a=obj.meth(x);**

**System.*out*.println(a);**

**System.*out*.println("Enter the no:");**

**int n=sc.nextInt();**

**int []arr=new int[n];**

**for(int i=0;i<n;i++) {**

**arr[i]=sc.nextInt();**

**}**

**n=obj.meth(arr, n);**

**for (int i = 0; i < n; i++)**

**System.*out*.print(arr[i] + " ");**

**}**

**}**

**7.Command line argument.**

Code:

**public class Cmd {**

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

**// TODO Auto-generated method stub**

**for(int i=0;i<args.length;i++) {**

**System.*out*.println(args[i]);**

**}**

**}**

**}**

**8.Check whether the given no is prime or not using innerclass.**

Code: