.....practicle 7.....

```
package assignment7;
import java.util.Objects;
import java.util.Scanner;
public class Number {
	//======================================== Array Method ========================================//

		public static < E > void arr( ) {
			Scanner sc =new Scanner(System.in);
			System.out.print("Enter size of array:: ");
			int n=sc.nextInt();//taking size of array from user

			Object[] arr=new Object[n]; //creating array of size n

			System.out.print("Enter Array Elements :: ");
			for(int i =0; i<n ;i++) {
				arr[i]=sc.next();// taking array element from user
			}

			System.out.print("Entered Array is :: ");
			for(Object element : arr) {
				System.out.printf("'%s' ", element); //printing array element on console
			}

			System.out.println();// printing blank line
		}

	//======================================= Pallindrome Method =======================================//
```

```
	public static < T > void Pallindrome(T s){
		String s1=(String)s;
		//converting s into string datatype
		s1=s1.toLowerCase();
		//converting into lowercase letter
		StringBuffer sb = new StringBuffer(s1);
		// creating stringbuffer

		String ss= new String(sb.reverse());
		//reversing stringbuffer and converting into string

		if(Objects.equals(s1, ss))		//checking both strings are equal or not
			System.out.println(s+" is Pallindrome");//if both string are equal
		else
			System.out.println(s+" is not Pallindrome");//if both string are
different
	}



	//======================================== EVEN ODD method
========================================//

	public static <T>void evenodd(T a){
		if((int)a%2==0)  //converting a into int and modulo by 2
			System.out.println(a+" is Even Number."); //if num is even

		else
			System.out.println(a+" is Odd Number."); //if num is odd
	}
```

```
	//======================================== PRIME METHOD ========================================//

		public static <T>void prime(T a) {
			if((int)a==1)	//check if a = 1
				System.out.println(a+" is Not Prime NNumber");

			else if ((int)a==2) //check if a = 2
				System.out.println(a+" is Prime Number");

			else if((int)a%2==0 && (int)a>2) //check if a >2 and a mod 2 =0
				System.out.println(a+" is Not Prime Number");

			else {
				double b=Math.sqrt((int)a)+1; //taking squareroot of (num) +1
				int temp=0; // setting temp variable = 0
				for(int i=3;i<b;i=i+2) {
					if((int)a%i==0) // check if mod = 0
						temp=1; //setting temp to 1
				}
				if(temp==1) // checking temp = 1 or not
					System.out.println(a+" is Not Prime Number");//if temp =1
				else
					System.out.println(a+" is Prime NNumber");// if temp!= 1
			}

		}


	//====================================== CHECK FUNCTION METHOD ======================================//
```

```
		public static <T>void checkfun(T s) {


			try {
				//try block
				int b = Integer.parseInt((String) s);
				// try to convert "s" into integer datatype
				System.out.println("We can perform Pallindrome , int Array , check
Prime , EvenOdd Function.");
				// if successfully converted, print rest of code
			}


			catch (NumberFormatException e) {
				//catch block
				// catch NumberFormateException
				System.out.println("We can perform Pallindrome , String Array.");
			}
		}
	}



public class Main {
	public static void main(String[] args) {
		String s; // declaring s as string
		Scanner sc =new Scanner(System.in); // creting object of scanner class


		aa: //loop aa
		while(true) {	//while loop
		System.out.println("\n\t==== MENU BAR ====\n\n\t1.String \n\t2.Integer"
				+ "\n\t3.integer array \n\t4.String Array"
				+ "\n\t5.Check Function\n\t6.Exit");
		//menu bar
```

```
        int c =sc.nextInt();//taking input from user



        switch(c) {// switch cases

        case 1:  //if input is 1
                System.out.print("Enter the String :: ");//printing on console
                s =sc.next();//taking String s as an input from user
                Number.Pallindrome(s); //calling Pallindrome method

System.out.println("=====================================================");
                break;

        case 2: //if input is 2
                System.out.print("Enter the Integer :: ");//printing on console
                s =sc.next();//taking String s as an input from user
                Number.Pallindrome(s); //calling Pallindrome method
                Number.evenodd(Integer.parseInt(s)); //calling Even Odd method
                Number.prime(Integer.parseInt(s)); //calling prime method

System.out.println("=====================================================");
                break;



        case 3: //if input is 3

        case 4: //if input is 4
                Number.arr();//array method

System.out.println("=====================================================");
                break;
```

```
            case 5: //if input is 5
                    System.out.print("Enter the String :: ");//printing on console
                    String ss =sc.next();//taking String ss as an input from user
                    Number.checkfun(ss); //calling check function method

        System.out.println("=====================================================");
                    break;

            case 6: //if input is 6

        System.out.println("=====================================================");
                    break aa; // break aa loop, stop execution of program

            default: //default Statement
                    System.out.println("Invalid Input !!!"); //printing invalid input on console

        System.out.println("=====================================================");

            }
        }
        }

}
```