Type Casting

1.	**What is type casting?** Converting from one data type to another data type.

2.	**What are the types of casting?**
	 There are two types of casting.
	    1) Numeric Primitive to another numeric primitive:
	      When the data is casted from one primitive type (like int, float, double etc…) to another primitive type, then it is called Primitive Casting.
	    2) Derived Casting:
	      When the data is casted from one derived type to another derived type, then it is called derived casting.

3.	**What are the different types of primitive casting?**
	 2 types of primitive casting:
	    1) Automatic Widening
	      Automatically any narrower can be converted to wider by the compiler itself, while compiling.
	      Compiler itself converts narrower to wider.
	      While widening data is not at all lost. i.e. Narrower can become wider without losing anything.
	    2) Explicit Narrowing
	      Narrowing cannot be done by the compiler automatically as narrowing is required so programmer has to do it programmatically.
	      As there is chance of loss of data compiler doesn't do it, programmer has to do it explicitly. i.e. loss of precision may occur.

4.	**What are the different types of derived casting?**
	 2 types of derived casting:
	    1) Auto upcasting
	      An object of sub class type can be automatically casted to super class type. This is called auto-up casting.
	    2) Explicit downcasting
	      An object of super class type should be explicitly casted to sub class type, It is called explicit down casting.

5.	**What is null?** null is a keyword, which is used for assigning to any reference variable.

Program:
Prime No:
Logic: Prime Number are divisible by itself only.

Not divisible by any Number	Divisible by 2 ...no need to check further	Divisible by 3 ...no need to check further
7%2=1	8%2=0	9%2=1
7%3=1	8%3=	9%3=0
7%4=3	8%4=	9%4
7%5=2	8%5=	9%5
7%6=1	8%6=	9%6
	8%7=	9%7

		9%8
Numbers are not divisible by more than half of the number		
No need to check upto 6 check upto 3 only	No need to check upto 7 check upto 4 only	No need to check upto 8 check upto 4 only

```java
import java.util.*;
class Prime
{
        public static void main(String args[])
        {
                int n, i, res;
                boolean flag=true;
                Scanner scan= new Scanner(System.in);
// To read input Scanner is from util package: java.util.Scanner
                System.out.println("Please Enter a No.");
                n=scan.nextInt();
                for(i=2;i<=n/2;i++)
                {
                        res=n%i;
                        if(res==0)
                        {
                                flag=false;
                                break;
                        }
                }
                if(flag)
                        System.out.println(n + " is Prime Number");
                else
                        System.out.println(n + " is not Prime Number");
        }
}
```