Experiment - 3

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Subject Name: Project Based Learning in Java
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Aim: To write a Java program to calculate the square root of a number entered by the user. Use try-catch to handle invalid inputs(like negative numbers or non-numeric values).

Objective: To understand how to handle invalid inputs using try-catch blocks in java.
Input Used : Java exception classes, try-catch block, Scanner class for input.
Procedure:

1. Prompt the user to input a number.
2. Convert input to a number type using Scanner.
3. Use a try-catch block to handle NumberFormatException and check for negative values.
4. If number is negative, throw exception.
5. If number is valid, print its square root.

Sample Input -
Enter a number: -19
Sample Output -
Error: Cannot calculate square root of a negative number.

Code -

```
package intro_day1;
import java.util.List;
import java.util.Scanner;
import java.util.ArrayList;

class Notvalidinput extends Exception{
public Notvalidinput(String msg) {
super(msg);
}
```

```
}
class practice{
public static void main(String args[]) {
Scanner sc=new Scanner(System.in);
System.out.println("Enter num: ");
int x=sc.nextInt();
try {
if(x<0) {
throw new Notvalidinput("square root not valid for negatives");
}
int low=1,high=x,ans=0;
while(low<=high) {
int mid=(low+high)/2;
if(mid*mid>x) {
high=mid-1;
}
else if(mid*mid<x) {
ans=mid;
low=mid+1;
}
else {
System.out.println(mid);
return;
}
}
System.out.println(ans);
}
catch(Notvalidinput e) {
System.out.println("error: "+e.getMessage());
}
}
}
```

Output -