



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment - 3

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Subject Name: Project Based Learning in Java

Subject Code: 23CSH-304

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 -

```
import java.util.Scanner;

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

public class Main {
    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
```



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```
System.out.print("Enter a number: ");
int x = sc.nextInt();

try {
    if (x < 0) {
        throw new NotValidInput("Square root not valid for negative
numbers");
    }

    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("Square root: " + mid);
            return;
        }
    }
    System.out.println("Square root (floor value): " + ans);

} catch (NotValidInput e) {
    System.out.println("Error: " + e.getMessage());
}

sc.close();
}
```

Output -

```
Enter a number: 225
Square root: 15

...Program finished with exit code 0
Press ENTER to exit console.
```



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```
Enter a number: -178
Error: Square root not valid for negative numbers

...Program finished with exit code 0
Press ENTER to exit console.
```