

# Making robust programs by checking for valid/invalid input

Method #1

```
import java.util.Scanner;
public class Prompt
{
    public static void main(String[] args)
    {
        Scanner reader = new Scanner(System.in);
        int gradelevel;

        while (true)
        {
            System.out.print("Enter your grade level (9-12): ");
            gradelevel = reader.nextInt();

            if (gradelevel >= 9 && gradelevel <= 12) break;
        }

        System.out.println();
        System.out.println("You entered a grade level of " +
            gradelevel + ".");
    }
}
```

## Method #2

```
import java.util.Scanner;
public class Prompt2
{
    public static void main(String[] args)
    {
        Scanner reader = new Scanner(System.in);
        int gradelevel;

        System.out.print("Enter your grade level (9-12): ");
        gradelevel = reader.nextInt();

        while (!(gradelevel >= 9 && gradelevel <= 12))
        {
            System.out.print("Enter your grade level (9-12): ");
            gradelevel = reader.nextInt();
        }

        System.out.println();
        System.out.println("You entered a grade level of " +
            gradelevel + ".");
    }
}
```

### Method #3

```
import java.util.Scanner;
public class Prompt3
{
    public static void main(String[] args)
    {
        Scanner reader = new Scanner(System.in);
        int gradelevel;

        do
        {
            System.out.print("Enter your grade level (9-12): ");
            gradelevel = reader.nextInt();
        }while (!(gradelevel>=9 && gradelevel<=12));

        System.out.println();
        System.out.println("You entered a grade level of " +
                           gradelevel + ".");
    }
}
```

The boolean conditions below are equivalent and any one of these statements will work for the previous method #2 & #3 programs.

```
!(gradelevel>=9 && gradelevel<=12)
```

```
!gradelevel>=9 || !gradelevel<=12
```

```
gradelevel<9 || gradelevel>12
```