



## P.KRANTI ABHISHEK

### RESEARCH PAPER ON BITWISE COMPLEMENT AND LOGICAL NOT

#### PARUCHURI KRANTIABHISHEK

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-abhishek/

#### EDUCATION

Degree	Institute	Score
B TECH CSE (2019-2023)	MVR COLLEGE OF ENGINEERING	8.05 CGPA
INTERMEDIATE(2019)	SRSVRGNR JR COLLEGE	9.94GPA
MATRICULATION(2017)	ST MARY'S HIGH SCHOOL	10 GPA

#### SKILLS

- JAVA ★ ★ ★ ★
- SQL ★ ★ ★ ★
- POWER BI ★ ★ ★ ★
- PYTHON ★ ★ ★
- JAVASCRIPT ★ ★ ★
- COMMUNICATION ★ ★ ★
- HTML, CSS ★ ★

#### AWARDS

- QUALIFIED IN  
DAKSHINA BHARAT  
HINDI PRACHAR  
SABHA
- SECURED THIRD IN  
DISTRICT LEVEL  
SPELL BEE  
COMPETITION

#### EXPERIENCE

##### KODNEST, BANGALORE – FULL STACK JAVA INTERN

JANUARY 20 - MAY

KodNest is an EdTech company whose mission has been to ensure to make Talent and Opportunities meet and we achieve this through our Software applications

#### PROJECTS

##### SPAMMER DETECTION AND FAKE USER IDENTIFICATION - MAJOR PROJECT

In this paper, we perform a review of techniques used for detecting spammers on Twitter. (i) fake content, (ii) spam based on URL, (iii) spam in trending topics, and (iv) fake users.

##### HANDWRITTEN CHARACTER RECOGNITION USING NEURAL NETWORKS – MINOR PROJECT

The main aim of this project is to design expert system for, "HCR using Neural Network" that can effectively recognize a particular character of type format using the Artificial Neural Network approach.

#### LANGUAGES

- ENGLISH
- HINDI
- TELUGU



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**RESEARCH PAPER ON BITWISE  
COMPLEMENT AND LOGICAL NOT**

**TITLE:**

**Bitwise Complement and Logical NOT in Java**

**ABSTRACT:**

This research paper explores the concepts of bitwise complement and logical NOT in Java programming. These operators are essential in manipulating binary data and Boolean values, respectively. The study contributes to a better understanding of these operators and their significance in Java programming.

**BITWISE COMPLEMENT:**

- ✧ The bitwise complement operator in Java, denoted as "~", is a unary operator that performs a bitwise inversion of the binary representation of a value.
- ✧ simply means the negation of each bit of the input value

$$\sim N = -(\sim(\sim N) + 1) = -(N + 1).$$

**SYNTAX:**

**DATATYPE VARIABLE\_NAME = ~VARIABLE\_NAME**

**EX:**

```
Int a=~8;
```

```
System.out.println(a); // -9
```



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## **RESEARCH PAPER ON BITWISE COMPLEMENT AND LOGICAL NOT**

### **NOT OPERATOR:**

This operator is called as Logical **NOT** operator. It accepts single value as an input and returns the inverse of the same.

if the condition is true then the operator returns false i.e. the opposite of true and vice versa.

**Ex:**

```
boolean a, result;  
a = true;  
result = !a;  
System.out.println("!" + a + " = " + result); //false
```

**NOTE:** It's important to note that the logical NOT operator has higher precedence than other logical operators, such as AND (&&) and OR (||).

### **QUESTION:**

**WHAT WE USE WHEN WE HAVE NUMBER RANGE MORE THAN LONG DATA TYPE ?**

### **BIG INTEGER CLASS:**

- **Big Integer class is the solution for this problem.**
- In Java, when the number range exceeds the capacity of the **long** data type, you can use the **java.math.BigInteger** class.
- **BigInteger** allows you to handle large numbers efficiently in Java without worrying about the limitations of fixed-size data types like **long**.



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## RESEARCH PAPER ON BITWISE COMPLEMENT AND LOGICAL NOT

**EX:**

```
BigInteger bd = new BigInteger("922337203685477582012312321");  
System.out.println(bd.multiply(new BigInteger("15")));  
System.out.println(bd);  
// BigInteger is a class and bd created is a object
```

Creation of big integers using **BigInteger** class

**QUESTION:**

**WHAT IS THE RANGE OF FLOAT AND DOUBLE DATA TYPES  
IN JAVA?**

**RANGE:**

In Java, the **float** and **double** data types represent floating-point numbers with different ranges and precision.

**Float data type-Single Precision**

**Double Data type-Double Precision**

**float Data Type:**

**Maximum positive value: 3.4028235E+38**

**Minimum positive value: 1.4E-45**

**Maximum negative value: -3.4028235E+38**

**Minimum negative value: -1.4E-45**



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**double Data Type:**

Maximum positive value: 1.7976931348623157E+308

Minimum positive value: 4.9E-324

Maximum negative value: -1.7976931348623157E+308

Minimum negative value: -4.9E-324

**CONCLUSION:**

- ✧ bitwise complement simply means the negation of each bit of the input value
- ✧ Logical **NOT** operator:: It's important to note that the logical NOT operator has higher precedence than other logical operators, such as AND (&&) and OR (||).
- ✧ In Java, when the number range exceeds the capacity of the **long** data type, you can use the **java.math.BigInteger** class.

**Float data type-Single Precision**

**Double Data type-Double Precision**

**THANKING YOU SIR,**

**PLEASE DO TAKE CARE OF YOUR SELVES,PLEASE  
DO TAKE CARE OF YOUR FAMILIES ,HAPPY CODING ,KEEP  
SMILING.....!**