University Institute of Computing

Chandigarh University

Gharuan , Mohali(Punjab)

COMPUTING APTITUDE MINI PROJECT

ON

"Number System Converter"

SUBMITTED BY:

Name: Ritika Dhounchak,
Husanpreet Kaur

UID: 23BCA10221,
23BCA10548

Section:23BCA-4A

SUBMITTED TO:

Name: Ms. Suchi Sharma

Designation: Chandigarh University

Signature:_____

Subject: Computing Aptitude

Subject Code: 23CAP-308

Mini Project Report on Number Converter System in C Language

---

1. Title

Number Converter System

---

2. Aim

To design and implement a Number Converter System using the C programming language that converts numbers between different numeral systems such as Decimal, Binary, Octal, and Hexadecimal.

---

3. Introduction

A Number Converter System is a simple yet useful program that allows users to convert numbers from one base system to another.
Number systems like Binary (base 2), Octal (base 8), Decimal (base 10), and Hexadecimal (base 16) are commonly used in computer science and digital electronics.

This project demonstrates how to perform these conversions using basic logic, loops, and conditional statements in C.
The system helps users understand number systems practically and enhances their programming logic and problem-solving skills.

---

4. Objectives

1. To develop a menu-driven program for number system conversions.
2. To allow conversion between:
    - Decimal ↔ Binary
    - Decimal ↔ Octal
    - Decimal ↔ Hexadecimal
    - Binary ↔ Decimal

3. To strengthen understanding of **loops**, **functions**, and **conditional logic** in C language.
4. To provide an easy-to-use and accurate number conversion tool.

---

5. Tools and Technologies Used

- **Programming Language:** C
- **Compiler:** GCC / Turbo C / Code::Blocks
- **Platform:** Windows / Linux
- **Concepts Used:** Loops, Functions, Arrays, Conditional Statements

---

6. System Design

The system is **menu-driven**, allowing the user to:

1. Choose the type of conversion.
2. Enter the number to convert.
3. Get the converted output displayed on the screen.

Flow of the Program:

Start

↓

Display Menu

↓

Take User Choice

↓

Input Number

↓

Perform Conversion

↓

Display Result

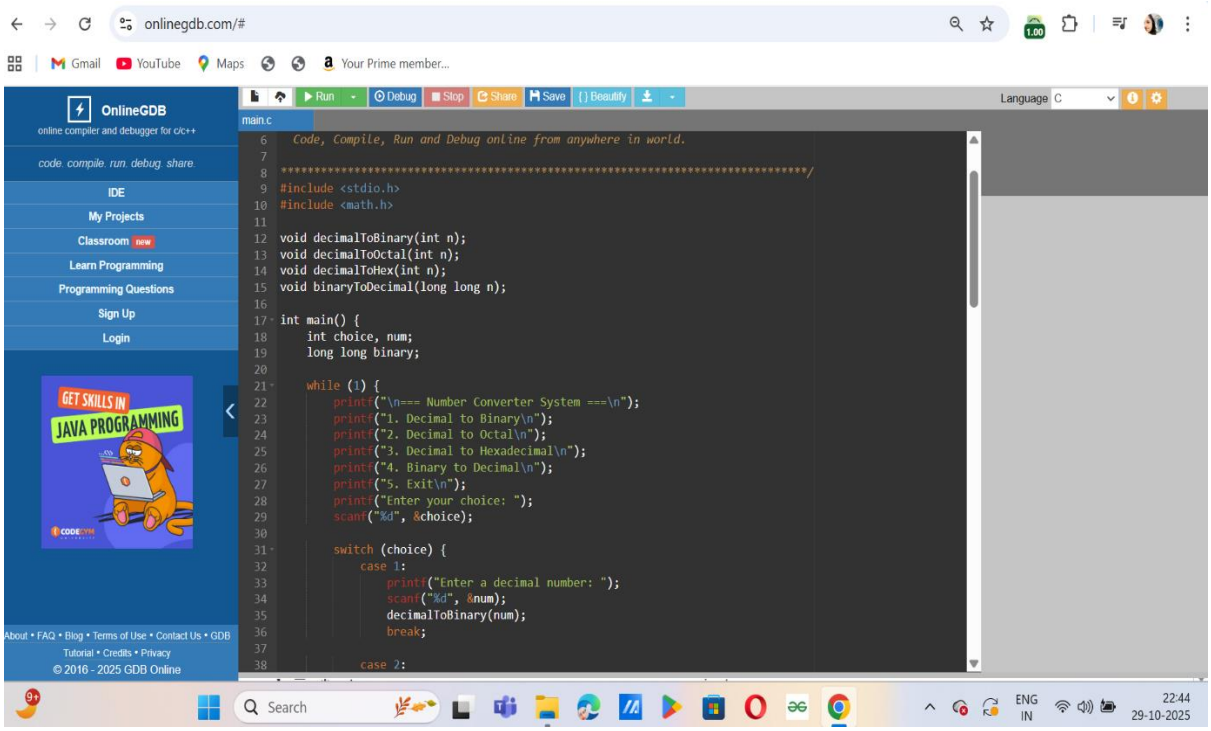
↓

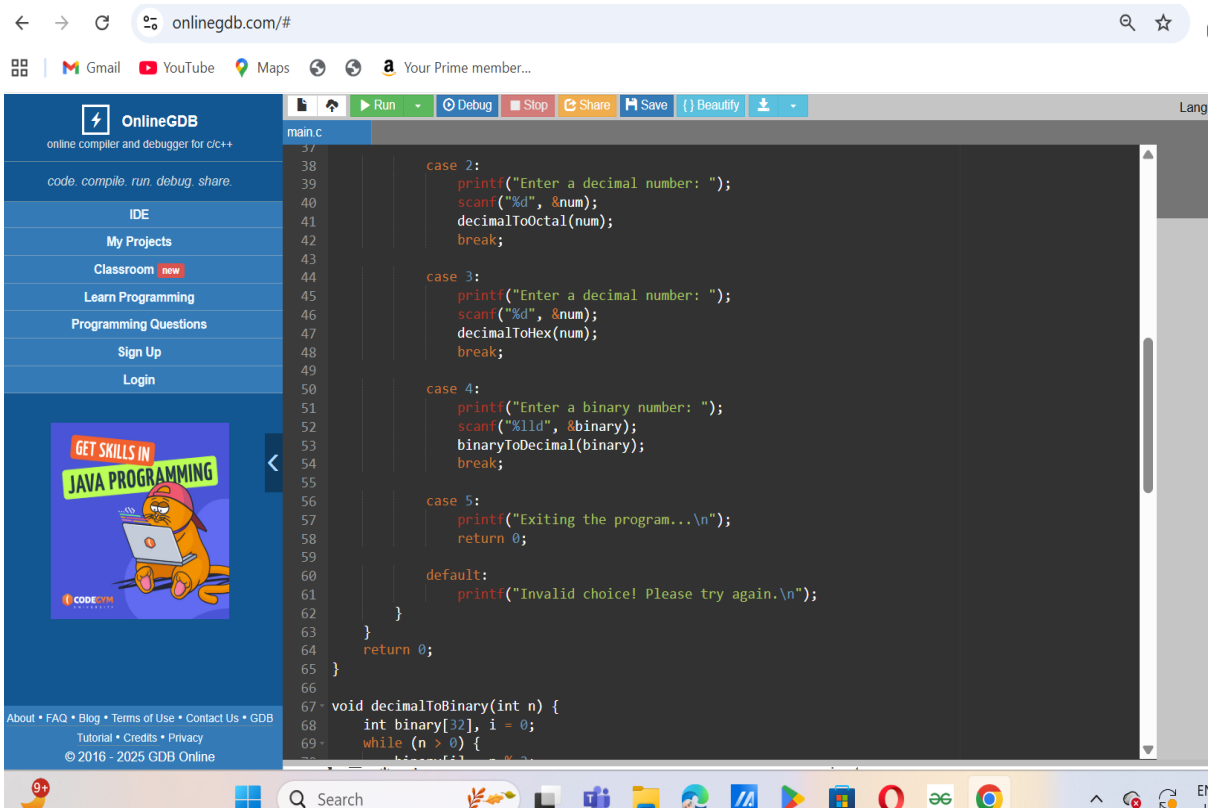
Repeat or Exit

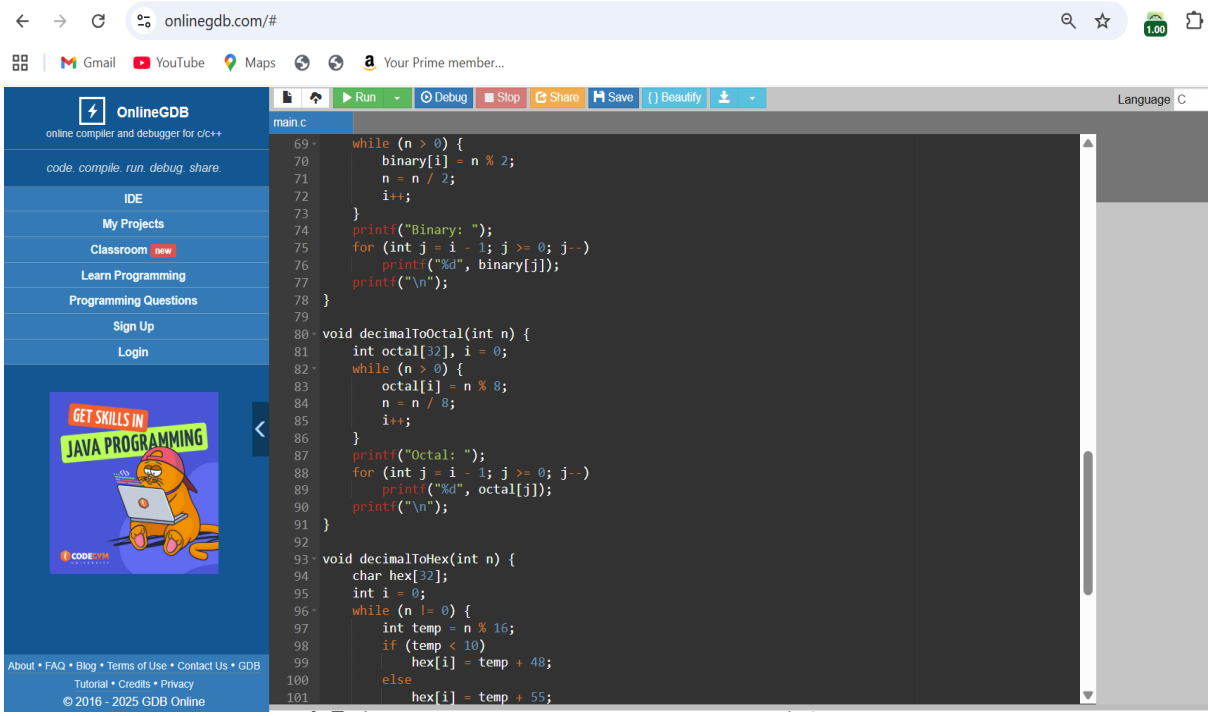
↓

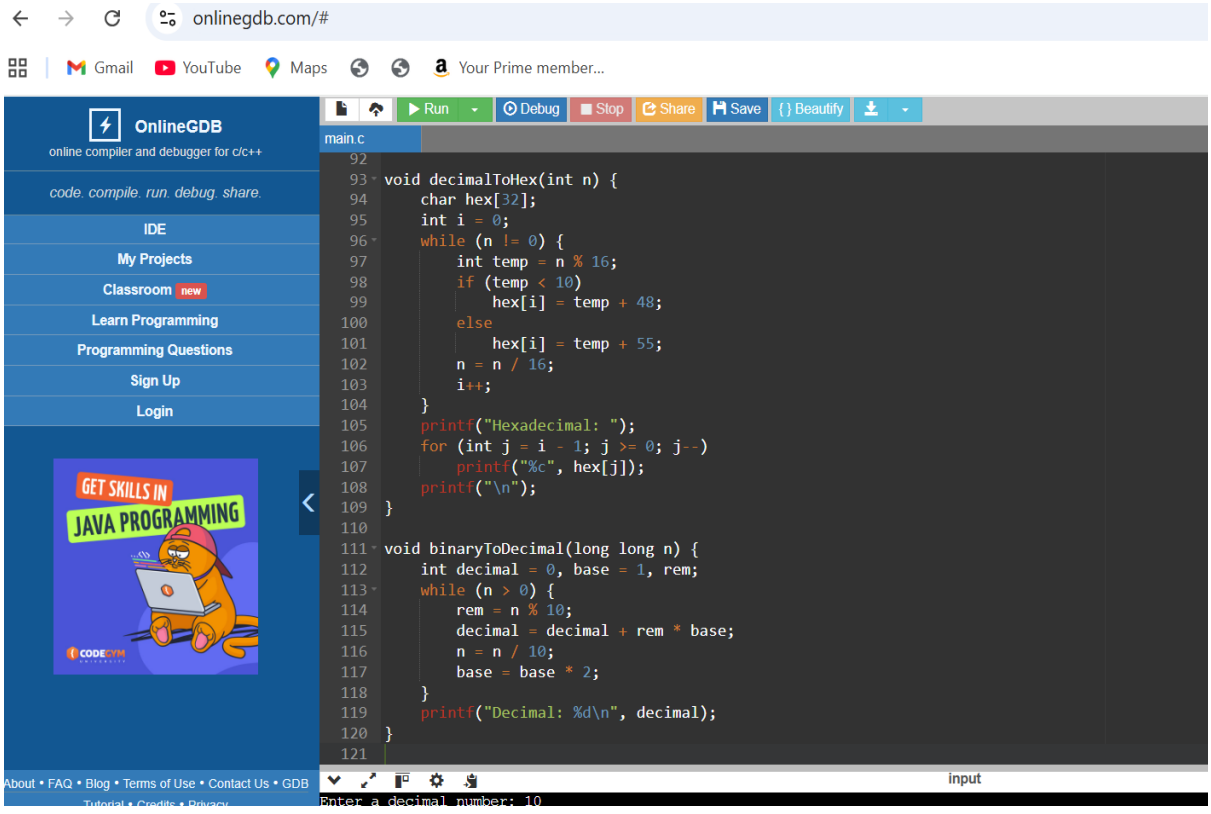
End

7. Source Code (C Program)

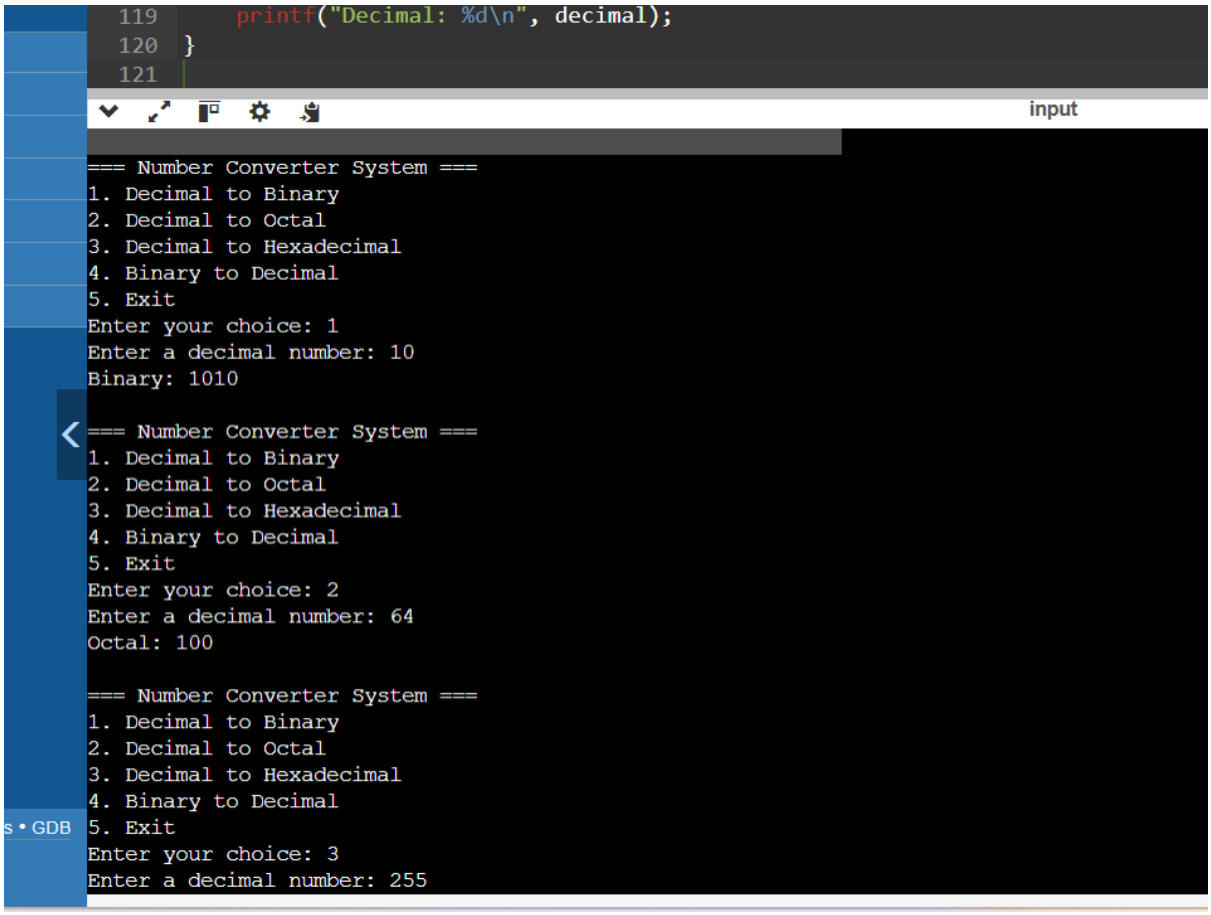


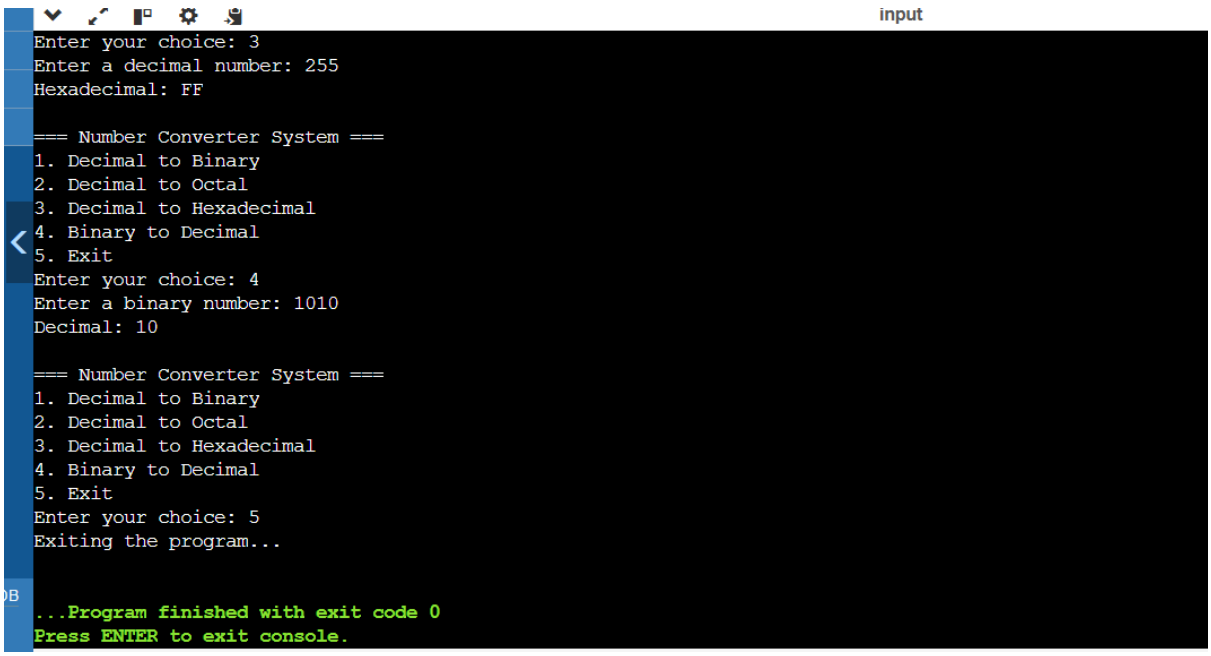



onlinegdb.com/#
Gmail
YouTube
Maps
Your Prime member...
OnlineGDB
online compiler and debugger for c/c++
code. compile. run. debug. share.
IDE
My Projects
Classroom new
Learn Programming
Programming Questions
Sign Up
Login
GET SKILLS IN
JAVA PROGRAMMING
CODEGYM
About • FAQ • Blog • Terms of Use • Contact Us • GDB
Tutorial • Credits • Privacy
© 2016 - 2025 GDB Online
Run
Debug
Stop
Share
Save
{ } Beautify
Language C
main.c
while (n > 0) {
binary[i] = n % 2;
n = n / 2;
i++;
}
printf("Binary: ");
for (int j = i - 1; j >= 0; j--)
printf("%d", binary[j]);
printf("\n");
}
void decimalToOctal(int n) {
int octal[32], i = 0;
while (n > 0) {
octal[i] = n % 8;
n = n / 8;
i++;
}
printf("Octal: ");
for (int j = i - 1; j >= 0; j--)
printf("%d", octal[j]);
printf("\n");
}
void decimalToHex(int n) {
char hex[32];
int i = 0;
while (n != 0) {
int temp = n % 16;
if (temp < 10)
hex[i] = temp + 48;
else
hex[i] = temp + 55;


onlinegdb.com/#
Gmail
YouTube
Maps
Your Prime member...
OnlineGDB
online compiler and debugger for c/c++
code. compile. run. debug. share.
IDE
My Projects
Classroom new
Learn Programming
Programming Questions
Sign Up
Login
GET SKILLS IN
JAVA PROGRAMMING
CODEGYM
About • FAQ • Blog • Terms of Use • Contact Us • GDB
Run
Debug
Stop
Share
Save
{ } Beautify
main.c
void decimalToHex(int n) {
char hex[32];
int i = 0;
while (n != 0) {
int temp = n % 16;
if (temp < 10)
hex[i] = temp + 48;
else
hex[i] = temp + 55;
n = n / 16;
i++;
}
printf("Hexadecimal: ");
for (int j = i - 1; j >= 0; j--)
printf("%c", hex[j]);
printf("\n");
}
void binaryToDecimal(long long n) {
int decimal = 0, base = 1, rem;
while (n > 0) {
rem = n % 10;
decimal = decimal + rem * base;
n = n / 10;
base = base * 2;
}
printf("Decimal: %d\n", decimal);
}
input
Enter a decimal number: 10

8. Output


119 printf("Decimal: %d\n", decimal);
120 }
121
input
=== Number Converter System ===
1. Decimal to Binary
2. Decimal to Octal
3. Decimal to Hexadecimal
4. Binary to Decimal
5. Exit
Enter your choice: 1
Enter a decimal number: 10
Binary: 1010
=== Number Converter System ===
1. Decimal to Binary
2. Decimal to Octal
3. Decimal to Hexadecimal
4. Binary to Decimal
5. Exit
Enter your choice: 2
Enter a decimal number: 64
Octal: 100
=== Number Converter System ===
1. Decimal to Binary
2. Decimal to Octal
3. Decimal to Hexadecimal
4. Binary to Decimal
5. Exit
Enter your choice: 3
Enter a decimal number: 255


input
Enter your choice: 3
Enter a decimal number: 255
Hexadecimal: FF
=== Number Converter System ===
1. Decimal to Binary
2. Decimal to Octal
3. Decimal to Hexadecimal
4. Binary to Decimal
5. Exit
Enter your choice: 4
Enter a binary number: 1010
Decimal: 10
=== Number Converter System ===
1. Decimal to Binary
2. Decimal to Octal
3. Decimal to Hexadecimal
4. Binary to Decimal
5. Exit
Enter your choice: 5
Exiting the program...
...Program finished with exit code 0
Press ENTER to exit console.

9. Result

The Number Converter System successfully converts numbers between different numeral systems (Decimal, Binary, Octal, Hexadecimal) as per user input. The program runs efficiently and produces accurate results.

---

10. Conclusion

This mini project helped in understanding:

- Number systems and their conversions.
- Use of loops, arrays, and functions in C.
- Designing user-friendly console-based applications.

It also improved logical thinking and practical implementation of C programming concepts.

---

11. Future Enhancements

1. Add conversion between Octal ↔ Binary and Hexadecimal ↔ Decimal.
2. Create a GUI version using graphics or modern languages.
3. Add error checking for invalid inputs.
4. Provide file saving options for results.
