```
[➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ vi conversion.c
[➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ vi conversion.h
[➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ vi complement.c
[➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ vi complement.h
[➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ cc arithmetic.c conversion.c complement.c main.c -o main
 ➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ ./main
[Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 1

Enter the first binary number:
x0 = 8
Error: Please enter 0 or 1 only.

x0 = 0
x1 = 0
x2 = 0
x3 = 0
x4 = 1
x5 = 0
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 2
Error: Please enter 0 or 1 only.

y0 = 0
y1 = 0
y2 = 0
y3 = 0
y4 = 0
y5 = 0
y6 = 0
y7 = 1

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 12 binary
Error: Invalid base selection. Please enter 1, 2, 3, or 4.

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 1

00001000 + 00000001 is 00001001 in Binary (Signed-2's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 1

Enter the first binary number:
x0 = 1
x1 = x
Error: Please enter 0 or 1 only.

x1 = 1
x2 = 1
x3 = 1
x4 = 1
x5 = 0
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 0
y1 = y
Error: Please enter 0 or 1 only.

y1 = 0
y2 = 0
y3 = 0
y4 = 0
y5 = 0
y6 = 0
y7 = 1

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 2 octal
Error: Invalid base selection. Please enter 1, 2, 3, or 4.

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 2

11111000 + 00000001 is 1 in Octal (Signed-8's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 1

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 8
Error: Please enter 0 or 1 only.

x2 = 0
x3 = 0
x4 = 1
x5 = 0
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 1
y1 = 1
y2 = -1
Error: Please enter 0 or 1 only.

y2 = 1
y3 = 1
y4 = 1
y5 = 1
y6 = 1
y7 = 1

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 12decimal
Error: Invalid base selection. Please enter 1, 2, 3, or 4.

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 3

00001000 + 11111111 is 7 in Decimal (Signed-10's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 1

Enter the first binary number:
x0 = 1
x1 = 1
x2 = 1
x3 = 1 add
Error: Please enter 0 or 1 only.

x3 = 1
x4 = 1
x5 = 0
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 1
y1 = 1
y2 = 1
y3 = 1add
Error: Please enter 0 or 1 only.

y3 = 1
y4 = 1
y5 = 1
y6 = 1
y7 = 1

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: -12 hexadecimal
Error: Invalid base selection. Please enter 1, 2, 3, or 4.

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 4

11111000 + 11111111 is 7 in Hexadecimal (Signed-16's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 1

Enter the first binary number:
x0 = 1
x1 = 0
x2 = 0
x3 = 1
x4 = x
Error: Please enter 0 or 1 only.

x4 = 1
x5 = 1
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 1
y1 = 1
y2 = 1
y3 = 0
y4 = y
Error: Please enter 0 or 1 only.

y4 = 0
y5 = 0
y6 = 1
y7 = 0
Warning: Overflow occurred.
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 2

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 0
x3 = 0
x4 = 1
x5 = 9
Error: Please enter 0 or 1 only.

x5 = 0
x6 = 0
x7 = 1

Enter the second binary number:
y0 = 0
y1 = 0
y2 = 0
y3 = 0
y4 = 0
y5 = 6
Error: Please enter 0 or 1 only.

y5 = 1
y6 = 1
y7 = 0

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 1

00001001 - 00000110 is 00000011 in Binary (Signed-2's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 2

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 0
x3 = 0
x4 = 1
x5 = 0
x6 = x
Error: Please enter 0 or 1 only.

x6 = 0
x7 = 1

Enter the second binary number:
y0 = 1
y1 = 1
y2 = 1
y3 = 1
y4 = 1
y5 = 0
y6 = y
Error: Please enter 0 or 1 only.

y6 = 1
y7 = 0

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 2

00001001 - 11111010 is 17 in Octal (Signed-8's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 2

Enter the first binary number:
x0 = 1
x1 = 1
x2 = 1
x3 = 1
x4 = 0
x5 = 1
x6 = 1
x7 = -9
Error: Please enter 0 or 1 only.

x7 = 1

Enter the second binary number:
y0 = 1
y1 = 1
y2 = 1
y3 = 1
y4 = 1
y5 = 0
y6 = 1
y7 = -6
Error: Please enter 0 or 1 only.

y7 = 0

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 3

11110111 - 11111010 is 7 in Decimal (Signed-10's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 2

Enter the first binary number:
x0 = 1
x1 = 1
x2 = 1
x3 = 1
x4 = 0
x5 = 1
x6 = 1
x7 = 1

Enter the second binary number:
y0 = 0
y1 = 0
y2 = 0
y3 = 0
y4 = 0
y5 = 1
y6 = 1
y7 = 0

Enter the output base:
        1) Binary
        2) Octal
        3) Decimal
        4) Hexadecimal
Choose: 4

11110111 - 00000110 is 1 in Hexadecimal (Signed-16's-Complement)
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 2

Enter the first binary number:
x0 = 0
x1 = 1
x2 = 1
x3 = 1
x4 = 0
x5 = 0
x6 = 0
x7 = 0

Enter the second binary number:
y0 = 1
y1 = 0
y2 = 1
y3 = 1
y4 = 0
y5 = 0
y6 = 0
y7 = 0
Warning: Overflow occurred.
```

```
Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: exit
Error: Invalid input. Please enter 0, 1, or 2.

Enter the command number:
        0) Exit
        1) Addition in signed-2's-complement
        2) Subtraction in signed-2's-complement
Choose: 0
Exiting...

➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab07/lab07_mandal5 $ _
```