```
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ vi main.c
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ vi arithmetic.c
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ vi arithmetic.h
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ vi conversion.c
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ vi conversion.h
[>> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ cc arithmetic.c conversion.c main.c -o main
 >> ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ ./main
[Enter the command number:
        0) Exit
        1) Addition in signed-magnitude
        2) Subtraction in signed-magnitude
Choose: 1

Enter the first binary number:
x0 = 12
Error: Please enter 0 or 1 only.

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

Enter the second binary number:
y0 = 5
Error: Please enter 0 or 1 only.

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

00001100 + 00000101 is 00010001 in Binary (The first digit is signed)
```

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

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

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

10001100 + 00000101 is -7 in Octal
```

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

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 12
Error: Please enter 0 or 1 only.

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

Enter the second binary number:
y0 = 1
y1 = 0
y2 = -5
Error: Please enter 0 or 1 only.

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

00001100 + 10000101 is +7 in Decimal
```

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

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

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

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

y3 = 0
y4 = 0
y5 = 1
y6 = 0
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

10001100 + 10000101 is -11 in Hexadecimal
```

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

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 0
x3 = 0
x4 = 12
Error: Please enter 0 or 1 only.

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

Enter the second binary number:
y0 = 0
y1 = 1
y2 = 1
y3 = 1
y4 = 127
Error: Please enter 0 or 1 only.

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

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

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

x5 = 1
x6 = 0
x7 = 0

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

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

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

Enter the first binary number:
x0 = 0
x1 = 0
x2 = 0
x3 = 0
x4 = 1
x5 = 1
x6 = 12
Error: Please enter 0 or 1 only.

x6 = 0
x7 = 0

Enter the second binary number:
y0 = 0
y1 = 0
y2 = 0
y3 = 0
y4 = 0
y5 = 1
y6 = 5
Error: Please enter 0 or 1 only.

y6 = 0
y7 = 1

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

00001100 - 00000101 is 00000111 in Binary (The first digit is signed)
```

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

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

x7 = 0

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

y7 = 1

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

10001100 - 00000101 is -21 in Octal
```

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

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

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

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

00001100 - 10000101 is +17 in Decimal
```

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

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

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

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

10001100 - 10000101 is -7 in Hexadecimal
```

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

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

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

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

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

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

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

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

➤➤ ~/Desktop/Folders/University of Windsor/Fall 2024/COMP-2650/Labs/Lab05/lab05_mandal5 $ _
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