

8-8-23 LARGEST NUMBER IN AN ARRAY

EXP. NO-15:-

Aim: To compare largest number in an array using 8085 processor.

Algorithm:

- ① Load the address of the element of array in HL pair.
- ② move the Count to B-register.
- ③ Increment the Pointer
- ④ Get the 1st data in A.
- ⑤ Decrement count ⑥ increment pointer.
- ⑦ Compare the content of memory addressed by HL pair with that of A.
- ⑧ if carry = 0, go to step-10 (or) if carry = 1 go to step-11.
- ⑨ move the content by HL to A-register.
- ⑩ Decrement the Count.
- (11) check for zero of the count, if ZF = 0, go to Step-6 (or) if ZF = 1 go to next.
- (12) store the largest data
- (13) Halt.

Program:

```
LXI H, 4200  
MOV B, M.  
INX H  
MOV A, M  
DCR B  
LOOP: INX H  
CMP M  
JNC AHEAD  
MOV A, M.  
AHEAD: DCR B.  
JNZ LOOP  
STA 4300.  
HLT.
```

Result: - Thus the program was executed successfully.

Input:-

| | | |
|------|------|----|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 1 |
| 106A | 4202 | 3 |
| 106B | 4203 | 7 |
| 106C | 4204 | 9 |
| 106D | 4205 | 5. |

Output:-

| | | |
|------|------|----|
| 10CC | 4300 | 9. |
|------|------|----|



2-8-23 SMALLEST NUMBER IN AN ARRAY.

Exp. No:- 16 :-

Aim:- To compute smallest number in an array.

Algorithm:-

- ① Load the address of element
- ② Move the count to B.
- ③ Increment Pointer
- ④ Get 1st data in A:
- ⑤ Decrement Count
- ⑥ Increment Pointer.
- ⑦ Compare the content of memory addressed by HL pair with that of A
- ⑧ If carry = 0, go to step-10 (or) if carry = 1 go to step-9
- ⑨ Move the content by HL to A.
- ⑩ Decrement Count.
- ⑪ Store the smallest number
- ⑫ HALT.

Program:-

LXI H, 4200

MOV B,M

INX H

MOV A,M

DCR B

LOOP: INX H

CMP M

JC AHEAD

MOV A,M

AHEAD: DCR B

JNZ Loop

STA 4300

HLT

Result:- They the program was executed successfully.



Input:

| | | |
|------|------|---|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 7 |
| 106A | 4202 | 2 |
| 106B | 4203 | 1 |
| 106C | 4204 | 3 |
| 106D | 4205 | 4 |

Output:

| | | |
|------|------|---|
| 10cc | 4300 | 1 |
|------|------|---|

2-8-23

ASCENDING ORDER

EXP.NO: 17 :-

Aim:- To compute ascending order. by using ~~ascending~~ 8085 Processor.

Algorithm:-

- ① Initialise HL pair as memory pointer.
- ② Get the count at 4200 into C.
- ③ Copy it in D.
- ④ Get the 1st value in A.
- ⑤ Compare it with the value at next.
- ⑥ If they are out of order, Exchange the contents of A.
- ⑦ Decrement D content by 1.
- ⑧ Repeat STEP - 5 & 7 till D becomes zero.
- ⑨ Decrement C content by 1.
- ⑩ Repeat STEP - 3 & 9 till C becomes zero.

Program:-

LXI H, 4200

MOV C, M

DCR C

REPEAT : MOV D, C

LXI H, 4201

LOOP : MOV A, M

INX H

CMP M

JC SKIP

MOV B, M

MOV M, A

DCX H

MOV H, A

INX H

SKIP : DCR D

JNZ Loop

DCR C

JNZ REPEAT

HLT.

Result:- Thus, the program was executed.

Input:-

| | | |
|------|------|---|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 7 |
| 106A | 4202 | 9 |
| 106B | 4203 | 1 |
| 106C | 4204 | 2 |
| 106D | 4205 | 3 |

Output:-

| | | |
|------|------|---|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 1 |
| 106A | 4202 | 2 |
| 106B | 4203 | 3 |
| 106C | 4204 | 7 |
| 106D | 4205 | 9 |

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DESCENDING ORDER

EXP.NO:-18+

Aim: To compute descending order using 8085 Processor.

Algorithm:

- ① Initialise HL Pair as memory pointer.
- ② Get the count at 4200 into C.
- ③ Copy it in 'D'.
- ④ Get the 1st value in 'A'.
- ⑤ Compare it with the value at next.
- ⑥ If they are out of order, Exchange the contents of A & B.
- ⑦ Decrement D content by 1.
- ⑧ Repeat steps 5 & 7 till D becomes 0.
- ⑨ Decrement C content by 1.
- ⑩ Repeat steps 3 & 9 till C becomes 0.

LXI H, 4200.

MOV C, M

DCR C

REPEAT : MOV D, C

LXI H, 4201

LOOP : MOV A, M

INX H

CMP M

JNC SKIP

MOV B, M

MOV M, A

DCX H

MOV M, A

INX H

SKIP : DCRD

JNZ Loop

DCR C

JNZ REPEAT

HIT.

Result: Thus, the program was executed.

Input:-

| | | |
|------|------|---|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 7 |
| 106A | 4202 | 9 |
| 106B | 4203 | 8 |
| 106C | 4204 | 1 |
| 106D | 4205 | 2 |

Output:-

| | | |
|------|------|---|
| 1068 | 4200 | 5 |
| 1069 | 4201 | 9 |
| 106A | 4202 | 8 |
| 106B | 4203 | 7 |
| 106C | 4204 | 2 |
| 106D | 4205 | 1 |

2-8-23

FACTORIAL

EXP. No:- 19 :-

Aim:- To compute factorial by using 8085 Processor.

Algorithm:-

- ① Load the data into register B.
- ② To start multiplication set C to 0AH
- ③ Jump to step - 7.
- ④ Decrement B to multiply previous number.
- ⑤ Jump to step - 3 till & D > 0.
- ⑥ Take memory pointer to next & store.
- ⑦ Load E with content of D & clear A'.
- ⑧ Repeatedly add content of E to accumulator.
- ⑨ Store ~~Accumulator~~ Content to A'.
- ⑩ Go to step - 4.

Programs:-

```

LDA 2001
MOV B,A
MVI C,#01
MVI E,#01
Loop: MOV D,C
MVI A,00H
LP: ADD E
DCR D
JNZ LP
MOV E,A
INR C
DCR B
JNZ Loop
MOV A,E
STA 2010
HLT.

```

Result:- Thus the program was executed.

Input:-

07D1 2001 5

Output:-

07DA 2010 120

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BINARY TO DECIMAL

EXP.NO:- 20tAim:- To convert Binary to decimal number.Algorithm:-

- ① Open devC++ app
- ② Type the code
- ③ Check whether the code is correct (or) not
- ④ If it is correct it shows output
- ⑤ Else it shows error and rectify it & get output.

Program:-

```
#include <stdio.h>
#include <math.h>
int Convert (long long);
int main() {
    long long n;
    printf ("Enter binary number:");
    scanf ("%lld", &n);
    printf ("%lld in binary = %d in decimal", n, Convert(n));
    return 0;
}
int Convert (long long n) {
    int dec = 0, i=0, rem;
    while (n!=0) {
        rem = n%10;
        n /= 10;
        dec += rem * pow(2,i);
        ++i;
    }
    return dec;
}
```

Input:- Enter binary number
= 100010Result:- Thus the program was
executed. ✓Output:- ~~Binary~~ 34

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DECIMAL TO BINARY.

EXP.NO:- 20:-

Aim:- To convert decimal to binary number.

Algorithm:-

- ① Open devC++ app
- ② TYPE the code
- ③ check whether the code is correct (or) not
- ④ If it is correct it shows output
- ⑤ If it is incorrect it shows error and rectify it and get output...

Program:- #include <stdio.h>

```
int main() {
    int decimal_num, binary_num = 0, i = 1, remainder;
    printf("Enter a decimal number: ");
    scanf("%d", &decimal_num);
    while (decimal_num != 0) {
        remainder = decimal_num % 2;
        decimal_num /= 2;
        binary_num += remainder * i;
        i *= 10;
    }
    printf("Binary number: %d\n", binary_num);
    return 0;
}
```

Input:-

Enter a decimal number: 65.

Output:- Binary number: 100001.

Result:- Thus the program was executed..



2-8-23

HEXADECIMAL TO DECIMAL

Exp. No: 22:-

Aim:

To convert Hexadecimal to decimal.

Algorithm:

- ① open devc++ app
- ② type the code.
- ③ run the code
- ④ If it is correct code, it shows output
- ⑤ If it is incorrect code, it shows error
- ⑥ rectify the error and run the code and get output..

Program:

```
#include <stdio.h>
int main()
{
    int n;
    scanf("%X", &n);
    printf("%d", n);
    return 0;
}
```

Input: 4d

Output: 77

Result: Thus the program executed... ✓

2-8-23 DECIMAL TO HEXADECIMAL

EXP. NO. 23:

Aim: To convert decimal to Hexadecimal.

Algorithm:

- ① open dev c++ app
- ② type the code
- ③ run the code
- ④ if it is correct code, it shows output
- ⑤ if it is incorrect code, it shows error.
- ⑥ rectify error & run the code get output.

Program:

```
#include <stdio.h>
int main(){
    long int decimal number;
    printf("Enter decimal number:");
    scanf("%d", &decimal number);
    printf("hexadecimal is: %x", decimal number);
    return 0;
}
```

Input:

Enter any decimal number = 45

16 | 45
 |
 | → 13

Output:

hexadecimal number is: 2D.

Result: Thus the Program was Executed.



DECIMAL TO OCTAL

Exp. No:- 241

Aim:- To compute decimal to octal.

- Algorithm:-
- ① open dev c++ app
 - ② type the program
 - ③ rectify the errors
 - ④ get output.

Program:-

```
#include <stdio.h>
#include <math.h>
int ConvertDecimalToOctal();
int main() {
    int decimalnumber;
    printf("Enter decimal number:");
    scanf("%d", &decimalnumber);
    printf("%d in decimal = %d in octal", decimalnumber,
        ConvertDecimalToOctal(decimalnumber));
    return 0;
}
int ConvertDecimalToOctal(int decimalnumber) {
    int octalnumber = 0, i = 1;
    while (decimalnumber != 0) {
        octalnumber += (decimalnumber % 8) * i;
        decimalnumber /= 8;
        i *= 10;
    }
    return octalnumber;
}
```

Input:- Enter a decimal number: 45

Output:- decimal = 55 in octal.

Result:- Thus, the program was executed.



OCTAL TO DECIMAL

Exp. No: 25

Aim: To compute octal to decimal.

Algorithm:

- ① Open dev C++ app.
- ② Type the Program.
- ③ Rectify the Errors
- ④ Get output.

```

Program:- #include <stdio.h>
# include <math.h>
int main()
{
    long int octal; decimal = 0;
    int i = 0;
    printf("Enter octal number:");
    scanf("%ld", &octal);
    while (octal != 0)
    {
        decimal = decimal + (octal % 10) * pow(8, i++);
        octal = octal / 10;
    }
    printf("decimal value: %ld", decimal);
    return 0;
}

```

Input: Enter octal number = 56

Output: decimal value = 46.

Result: Thus, the program was executed....

$$5 \times 8^1 = 40$$

$$6 \times 8^0 = 6$$

$$40 + 6 = 46$$

