ASIAN COLLEGE OF HIGHER STUDIES

ACHS

COLLEGE OF IT AND COMPUTER SCIENCE

Lab report of Computer Architecture

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Addition of two 8-bit numbers using 2's compliment method:

Algorithm:

- Initialize two array a and b to store 8-bit numbers and carry = 0.
- Read the value of a and b from user.
- Now add each element of array a and b and carry too and store in array sum.
  - If sum is equal to or greater than 2 then sum[i] = sum[i] % 2 and carry=1.
  - Else carry = 0.
  - Finally, print the array of sum which is our answer.

Source code:

//Adding two 8-bit numbers using 2's compliment

#include<stdio.h>

#include<conio.h>

void main()

{

        int i, a[8],b[8],carry=0, sum[8];

    printf("Enter first 8-bit no:\n");

        for(i=0;i<8;i++)

        {

                scanf("%d",&a[i]);

        }

        printf("Enter second 8-bit no:\n");

```c
for(i=0;i<8;i++)
{
        scanf("%d",&b[i]);
}
//adding code
for(i=7;i>=0;i--)
{
        sum[i]=a[i]+b[i]+carry;


        if(sum[i]>=2)
        {
                sum[i]=sum[i]%2;
                carry=1;
        }


        else
        {
                carry=0;
        }
}

printf("\n");
printf("Sum= ");
```
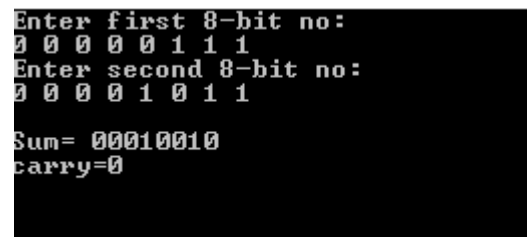
```c
        for(i=0;i<8;i++)

        {

                printf("%d",sum[i]);

        }


        printf("\n");

        printf("carry=%d",carry);


        getch();

}
```

Output:

```
Enter first 8-bit no:
0 0 0 0 0 1 1 1
Enter second 8-bit no:
0 0 0 0 1 0 1 1

Sum= 00010010
carry=0
```

Conclusion:

Hence, using c language, we can add two 8-bit numbers using 2's compliment method.