DSTL LAB ASSIGNMENT 3

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Section: 3-B

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1. Write a program in C to perform the Power Set operation on a set.

```
#include <stdio.h>
#include <math.h>

void printPowerSet(char *set, int set_size)
{
        /*set_size of power set of a set with set_size
n is (2**n -1)*/
        unsigned int pow_set_size = pow(2, set_size);
        int counter, j;

        /*Run from counter 000..0 to 111..1*/
        for(counter = 0; counter < pow_set_size; counter++)
        {
        for(j = 0; j < set_size; j++)
        {
                /* Check if jth bit in the counter is set
                If set then print jth element from set */
                if(counter & (1<<j))
                        printf("%c", set[j]);
        }
        printf("\n");
        }
} int main()
{
        char set[] = {'a','b','c'};
 printPowerSet(set, 3);
        return 0;
}
```

OUTPUT:

2. Write a program in C to display the Boolean Truth table for AND, OR and NOT.

```
#include<stdio.h>   void
main()
{   int
a[2][2],b[2][2],c[2];
int i,j;
 for(i=0;i<=1;i++)
 {
 for(j=0;j<=1;j++)
  {
   a[i][j]=(i&&j);
b[i][j]=(i||j);
  }  }
for(i=0;i<=1;i++)
 {  c[i]=(!i);
 }
 printf("\nThe Truth Table for AND Gate( && ) is..\n");
 printf("   A    B    :    C=A&&B\n");
for(i=0;i<=1;i++)
 {
  for(j=0;j<=1;j++)
   {
    printf("   %d    %d    :    %d\n",i,j,a[i][j]);
   }  }   printf("\nThe Truth Table for OR Gate( || )
is..\n");  printf("   A    B    :    C=A||B\n");
for(i=0;i<=1;i++)   {
  for(j=0;j<=1;j++)
   {
```

```
    printf("  %d   %d    :   %d\n",i,j,b[i][j]);
   } }   printf("\nThe Truth Table for NOT Gate (!)
is..\n");
 printf("   A   :  B = !A\n");
 for(i=0;i<=1;i++)
 {
   printf("   %d   :  %d\n",i,c[i]);
 }
}
```

OUTPUT: