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SUBJECT	Design and Analysis of Algorithms
EXPERIMENT NO :	1A
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AIM:	To implement the various functions e.g., linear, non-linear, quadratic, exponential etc. 1) Print the values of each function value for all n starting 0 to 100 in tabular format for both aforementioned cases 2) Draw two 2D plot of all functions such that x-axis represents the values of n and y-axis represent the function value for different n values using LibreOffice Calc/MS Excel.
THEORY	A function is a relation between a set of inputs and a set of permissible outputs with the property that each input is related to exactly one output. Let A & B be any two non-empty sets; mapping from A to B will be a function only when every element in set A has one end, only one image in set B. 1) n 2) n^3 3) log n 4)$n.2^n$ 5)log (log n)

	6) 2^n 7) e^n 8) 3/2.n 9) $(\log n)^{1/2}$ 10) n.(log n)
ALGORITHM	➢ Initialize variables n and result. 1. n Take the value of n from 0-100 and print all the values. 2. n^3 • result = n*n*n • Apply a for loop for values of n from 0-100 and print all thevalues for result. 3. log(n) • result = log(n) • Apply a for loop for values of n from 0-100 and print all thevalues for result. 4. n*2^n • result = n*pow(2,n) • Apply a for loop for values of n from 0-100 and print all thevalues for result. 5. (3/2)^n • result = log(log(n)) • Apply a for loop for values of n from 0-100 and print all thevalues for result.

	6. e^n • result = pow(2,n) • Apply a for loop for values of n from 0-100 and print all thevalues for result. 7. 2^n • result = exp(n) (e^n) • Apply a for loop for values of n from 0-100 and print all thevalues for result. 8. lg(lg n) • result = 3/2*n • Apply a for loop for values of n from 0-100 and print all thevalues for result. 9. (logn)^1/2 • result = pow(log(n),0.5) • Apply a for loop for values of n from 0-100 and print all thevalues for result. 10.n*log(n) • result = n*log(n) • Apply a for loop for values of n from 0-100 and print all thevalues for result.

PROGRAM:

```c
#include <stdio.h>
#include <stdlib.h>
#include <math.h>
int main(){
    int n,f1,f2,x=0;
    long double f4,f7,f11;
    double f3,f5,f6,f8,f9,f10;
    while(x<=11){
        printf("Enter the function no.:\n");
        scanf("%d",&x);
        if(x==1){
            printf("n\n");
            for(int i=0; i<=100; i++){
                f1=i;
                printf("%d\n",f1);
            }
        }
        if(x==2){
            printf("n^3\n");
            for(int i=0; i<=100; i++){
                f2=i*i*i;
                printf("%d\n",f2);
            }
        }
        if(x==3){
            printf("log(n)\n");
            for(int i=0; i<=100; i++){
                f3=log(i);
                printf("%.2lf\n",f3);
            }
        }
        if(x==4){
            printf("n.2^n\n");
            for(int i=0; i<=100; i++){
                f4=i*(pow(2,i));
                printf("%.Lf\n",f4);
            }
        }
        if(x==5){
            printf("(3/2)n\n");
            for(int i=0; i<=100; i++){
                f5=1.5*i;
                printf("%.2lf\n",f5);
            }
        }
```

```
        if(x==6){
            printf("e^n\n");
            for(int i=0; i<=100; i++){
                f6=exp(i);
                printf("%.2lf\n",f6);
            }
        }
        if(x==7){
            printf("2^n\n");
            for(int i=0; i<=100; i++){
                f7=(pow(2,i));
                printf("%.Lf\n",f7);
            }
        }
        if(x==8){
            printf("log(log(n))\n");
            for(int i=0; i<=100; i++){
                f8=log(log(i));
                printf("%.2lf\n",f8);
            }
        }
        if(x==9){
            printf("(logn)^1/2\n");
            for(int i=0; i<=100; i++){
                f9=pow(log(i),0.5);
                printf("%.2lf\n",f9);
            }
        }
        if(x==10){
            printf("n*log(n)\n");
            for(int i=0; i<=100; i++){
                f10=i*log(i);
                printf("%.2lf\n",f10);
            }
        }

        else{
            exit(0);
        }
    }
    return 0;
}
```

CONCLUSION:	In this experiment we have implemented various functions in C program.