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BRANCH:-	S.Y CSE DATA SCIENCE
BATCH:-	D
SUBJECT:-	DESIGN AND ANALYSIS OF ALGORITHM
EXP. NO.:-	1
DATE:-	25/01/23

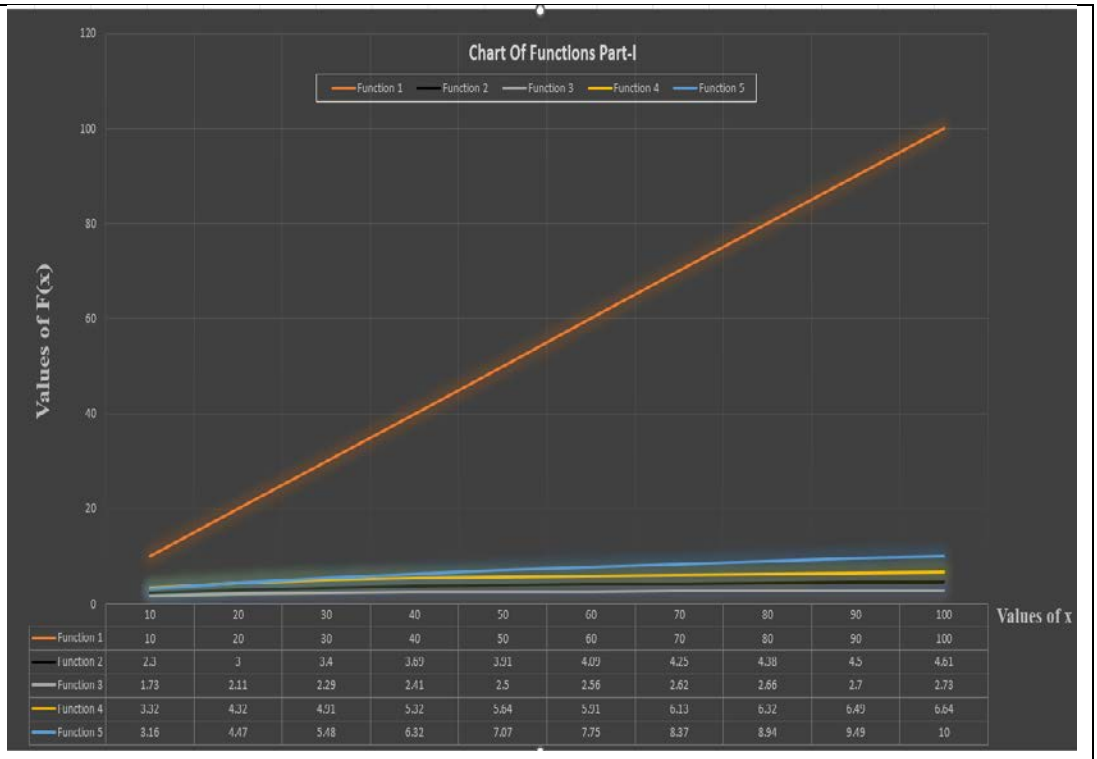
AIM:	To implement the various functions e.g. linear, non-linear, quadratic, exponential etc.
PROGRAM:	

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

int f1(int x){
    return x;
}

double f2(int x){
    return log(x);
}

double f3(int x){
    return log2(log2(x));
}

double f4(int x){
    return pow(2,log2(x));
}

double f5(int x){
    return log2(x);
}

double f6(int x){
    return pow(sqrt(2),log2(x));
}

double f7(int x){
    return pow(log2(x),2);
}

double f8(int x){
    return pow(2,sqrt(2*log2(x)));
}
```

```
double f9(int x){
    return x*log2(x);
}

double f10(int x){
    return pow(x,1.0/log2(x));
}

int main(){
    printf("\nX\tF1\tF2\tF3\tF4\tF5\tF6\tF7\tF8\tF9\tF10");
    for(int i=10;i<=100;i+=10){
        printf("\n%d\t",i);
        printf("%d\t",f1(i));
        printf("%.2lf\t",f2(i));
        printf("%.2lf\t",f3(i));
        printf("%.2lf\t",f4(i));
        printf("%.2lf\t",f5(i));
        printf("%0.2lf\t",f6(i));
        printf("%.2lf\t",f7(i));
        printf("%.2lf\t",f8(i));
        printf("%.2lf\t",f9(i));
        printf("%.2lf",f10(i));
    }
}
```

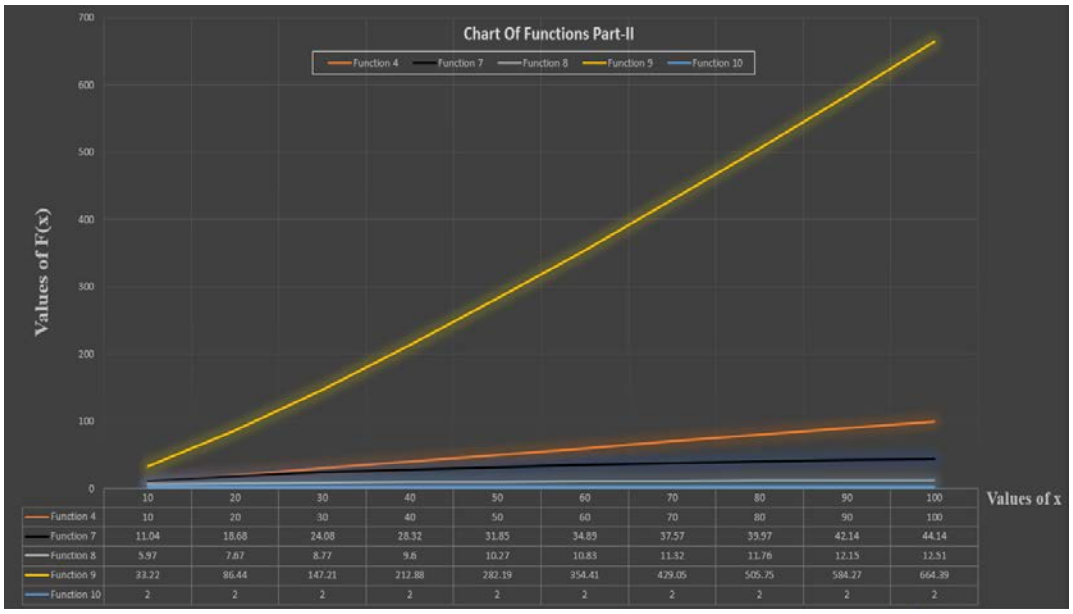
RESULT:

```
PS C:\Users\SATISH H THAKAR\OneDrive\Desktop\PSOOP> cd "c:\Users\SATISH H THAKAR\OneDrive\Desktop\PSOOP"
PS C:\Users\SATISH H THAKAR\OneDrive\Desktop\PSOOP> & .\"code.exe"

X       F1      F2      F3      F4      F5      F6      F7      F8      F9      F10
10      10      2.30    1.73    10.00   3.32    3.16    11.04   5.97    33.22   2.00
20      20      3.00    2.11    20.00   4.32    4.47    18.68   7.67    86.44   2.00
30      30      3.40    2.29    30.00   4.91    5.48    24.08   8.77    147.21  2.00
40      40      3.69    2.41    40.00   5.32    6.32    28.32   9.60    212.88  2.00
50      50      3.91    2.50    50.00   5.64    7.07    31.85   10.27   282.19  2.00
60      60      4.09    2.56    60.00   5.91    7.75    34.89   10.83   354.41  2.00
70      70      4.25    2.62    70.00   6.13    8.37    37.57   11.32   429.05  2.00
80      80      4.38    2.66    80.00   6.32    8.94    39.97   11.76   505.75  2.00
90      90      4.50    2.70    90.00   6.49    9.49    42.14   12.15   584.27  2.00
100     100     4.61    2.73    100.00  6.64    10.00   44.14   12.51   664.39  2.00
```



	10	20	30	40	50	60	70	80	90	100
Function 1	10	20	30	40	50	60	70	80	90	100
Function 2	2.3	3	3.4	3.69	3.91	4.09	4.25	4.38	4.5	4.61
Function 3	1.73	2.11	2.29	2.41	2.5	2.56	2.62	2.66	2.7	2.73
Function 4	3.32	4.32	4.91	5.32	5.64	5.91	6.13	6.32	6.49	6.64
Function 5	3.16	4.47	5.48	6.32	7.07	7.75	8.37	8.94	9.49	10

Values of x



	10	20	30	40	50	60	70	80	90	100
Function 4	10	20	30	40	50	60	70	80	90	100
Function 7	11.04	18.68	24.08	28.32	31.85	34.89	37.57	39.97	42.14	44.14
Function 8	5.97	7.87	8.77	9.6	10.27	10.83	11.32	11.76	12.15	12.51
Function 9	33.22	86.44	147.21	212.88	282.19	354.41	429.05	505.75	584.27	664.39
Function 10	2	2	2	2	2	2	2	2	2	2

Values of x

CONCLUSION: