

```

#include<stdio.h>
#include<conio.h>

void main()
{
    static float backw_table[30][30];
    float inp_x,est_y,xn,yn,h,u,sum,term;
    int i,j,k,n;

    clrscr();
    printf("\nEnter number of data points required --> ");
    scanf("%d",&n);
    printf("\nEnter your data \n");
    for(i=0;i<n;++i)
    {
        printf("\nEnter x[%d] = ",i);
        scanf("%f",&backw_table[i][0]);

        printf("\nEnter y[%d] = ",i);
        scanf("%f",&backw_table[i][1]);
    }

    for(j = 2;j<=n;++j)
    {
        for(i=j-1;i<n;++i)
            backw_table[i][j] = backw_table[i][j-1] -
backw_table[i-1][j-1];
    }

    printf("\nThe Backward differnce table is given below::\n");
    printf("\n\n\t X\t Y\t dy");
    if(n>=3)
        for(i=3;i<=n;++i) printf("\td%dy\t\t",i-1);
    printf("\n\n");
    for(i=0;i<n;++i)
    {
        for(j=0;j<=n;++j) printf("\t%3.2f",backw_table[i][j]);
        printf("\n\n");
    }

    printf("\nEnter x value for which y is to be estimated = ");
    scanf("%f",&inp_x);
    xn = backw_table[n-1][0];
    h = xn - backw_table[n-2][0];
    u = (inp_x - xn)/h;
    yn = backw_table[n-1][1];

    sum = yn;
    term = 1;
}

```

```
for(j = 2;j<=n;++j)
{
    term = term * u/(j-1);
    sum = sum + term*backw_table[n-1][j];
    u = u+1;
}
est_y = sum;

printf("\n\nThe estimated value for x = %fis y = %f",inp_x,est_y);
getch();
}
```