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**NPTEL** (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Problem Solving Through Programming In C (course)**



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## Week 11 : Programming Assignment 1

**Due on 2023-10-12, 23:59 IST**

The velocity of a car at different time instant is given as

Time (t)	10	15	18	22	30
Velocity $v(t)$	22	26	35	48	68

A linear Lagrange interpolant is found using these data points. Write a C program to find the velocity of the car at different time instants. (Taken from test cases)

Your last recorded submission was on 2023-10-06, 01:21 IST

Select the Language for this assignment. C ▾

```

1 #include<stdio.h>
2 int main()
3 {
4     float t[100]={10,15,18,22,30}, v[100]={22,26,35,48,68};
5     float a; //Value of the t to find the respective value of v(t)
6     scanf("%f", &a); // This will be taken from test cases
7
8     int i,j;
9     float b,c,k=0;
10    for(i=0;i<5;i++)
11    {
12        b=1;c=1;
13        for(j=0;j<5;j++)
14        {
15            if(j!=i)
16            {
17                b=b*(a-t[j]);
18                c=c*(t[i]-t[j]);
19            }
20        }
21        k=k+((b/c)*v[i]);
22    }

```

### Course outline

**How does an  
NPTEL  
online  
course  
work? ()**

**Week 0 : ()**

**Week 1 ()**

**Week 2 ()**

**Week 3 ()**

**Week 4 ()**

**Week 5 ()**

<b>Week 6 ()</b>
<b>Week 7 ()</b>
<b>Week 8 ()</b>
<b>Week 9 ()</b>
<b>Week 10 ()</b>
<b>Week 11 ()</b>
<div><div></div><div>Lecture 51 : Interpolation (unit? unit=101&amp;less on=102)</div></div>
<div><div></div><div>Lecture 52 : Trapezoidal Rule and Runge-Kutta Method (unit? unit=101&amp;less on=103)</div></div>
<div><div></div><div>Lecture 53 : Recursion (unit? unit=101&amp;less on=104)</div></div>
<div><div></div><div>Lecture 54 : Recursion(Co ntd.) (unit? unit=101&amp;less on=105)</div></div>
<div><div></div><div>Lecture 55 : Structure (unit? unit=101&amp;less on=106)</div></div>
<div><div></div><div>Quiz: Week 11 : Assignment 11 (assessment? name=273)</div></div>
<div><div></div><div><b>Week 11 : Programmin g Assignment 1 (/noc23_cs12 1/progassign</b></div></div>

```
0 printf("The respective value of the variable v is: %.2f", k);
1 return 0;
2 }
```

You may submit any number of times before the due date. The final submission will be considered for grading.

**This assignment has Public Test cases. Please click on "Compile & Run" button to see the status of Public test cases. Assignment will be evaluated only after submitting using Submit button below. If you only save as or compile and run the Program , your assignment will not be graded and you will not see your score after the deadline.**

Save as Draft

Compile & Run

Submit

Reset

Sample Test Cases		
	Input	Output
Test Case 1	25	The respective value of the variable v is: 56.42
Test Case 2	16	The respective value of the variable v is: 28.74

**ment?**  
**name=274)**

☒ Week 11 :  
Programming  
Assignment 2  
(/noc23\_cs121  
/progassignment?  
name=275)

☒ Week 11 :  
Programming  
Assignment 3  
(/noc23\_cs121  
/progassignment?  
name=276)

☒ Week 11 :  
Programming  
Assignment 4  
(/noc23\_cs121  
/progassignment?  
name=277)

☐ Feedback  
Form of Week  
11 (unit?  
unit=101&less  
on=278)

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