



ASSIGNMENT-4

CSE1002 OOP with C++



JULY 10, 2021

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20BDS0405



Switch to other questions

!!!Caution!!!

**Copy/Paste is Disabled for Assessments. Do not Try to overcome by Shortcut Keys or Drag/Drop
You will Lose Data**

Find maximum possible stolen value from houses

There are n houses build in a line, each of which contains some value in it. A thief is going to steal the maximal value of these houses, but he can't steal in two adjacent houses because the owner of the stolen houses will tell his two neighbors left and right side. What is the maximum stolen value?

Examples:

Test case: Input: hval[] = {6, 7, 1, 3, 8, 2, 4} **Output:** 19 **Explanation:** The thief will steal 6, 1, 8 and 4 from the house.

Font Size

18

Language

Editor Theme

Select a Theme

```
#include<iostream>
using namespace std;

int stolen(int *x)
{
    int sum=0;
    for(int i=0; i<7; i=i+2)
    {
        sum += *x;
        x++;
        x++;
    }
    return sum;
}

int main()
{
    int housearray[7];
    for(int i=0; i<7; i++)
    {
        cin>> housearray[i];
    }
    cout << stolen(housearray) << endl;
    return 0;
}
```

Save

Pause Test

Submit Code

Status:



Name: BIMAL PARAJULI

Registration number: 20BDS0405

Time Remaining: 02:20:41

Switch to other questions

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Test case: Input: hval[] = {5, 3, 4, 11, 2}

Output: 16

Explanation: Thief will steal 5 and 11

Font Size

18

Language

Editor Theme

Select a Theme

Your code has Passed Execution

```
#include<iostream>
using namespace std;

int stolen(int *x)
{
    int sum=0;
    for(int i=0; i<5; i=i+3)
    {
        sum+= *x;
        x++;x++;x++;
    }
    return sum;
}

int main()
{
    int myarray[5];

    for(int i=0;i<5; i++)
    {
        cin >> myarray[i];
    }

    cout << stolen(myarray) << endl;

    return 0;
}
```

Save

Pause Test

Submit Code

Status:



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Animal, Dog, Cat

C++ program to demonstrate the use of virtual function

we have a base class `Animal` and derived classes `Dog` and `Cat`. Suppose each class has a data member named `type`. these variables are initialized through their respective constructors.

we could make `getType()` **virtual** in the `Animal` class, then create a single, separate `print()` function that accepts a pointer of `Animal` type as its argument. We can then use this single function to override the virtual function.

The output is

```
Animal: Animal  
Animal: Dog  
Animal: Cat
```

Font Size

18

Language

Editor Theme

Select a Theme

```
#include<iostream>
using namespace std;

class Animal
{
public:
    virtual void print()
    {
        cout << "Animal" << endl;
    }
};

class Dog : public Animal
{
    void print()
    {
        cout << "Dog" << endl;
    }
};

class Cat : public Animal
{
    void print()
    {
        cout << "Cat" << endl;
    }
};

int main()
{
    Animal a;
    a.print();
    Animal * animalptr;
    Dog d;
    Cat c;

    animalptr = &d;
    animalptr -> print();

    animalptr = &c;
    animalptr -> print();

    return 0;
}
```

Save

Pause Test

Submit Code

Status:

C: > Users > Bimal > Desktop > array_of_objects.cpp > arra

```
#include<iostream>
using namespace std;

class Student.....// student calss
{
    ....int roll;
    ....char name[50];
    ....int total;

public:
    ....void getdata()
    ....{
        ....cout << "Enter your Roll: "
        ....<< endl;
        ....cin >> roll;
        ....cout << "Enter your Name: "
        ....<< endl;
        ....cin.ignore();
        ....cin.get(name, 50);
        ....cout << "Enter your Total "
        ....<< "Marks: " << endl;
        ....cin >> total;
    ....}

    ....int pos(Student obj[], int size)
    ....{
        ....int pos = 0;
        ....int max = obj[0].total;
        ....for (int i = 0; i < size; i++)
        ....{
            ....if (obj[i].total > max)
            ....{
                ....max = obj[i].total;
                ....pos = i;
            ....}
        ....}
        ....return pos;
    ....}

    ....void putdata()
    ....{
        ....cout << "Roll: " << roll
        ....<< endl;
        ....cout << "Name: " << name
        ....<< endl;
        ....cout << "Total Marks: "
        ....<< total << endl;
    ....}
};

void arrayofObjects()
{
    ....Student s[3], s1;
    ....int pos;
    ....for (int i = 0; i < 3; i++)
    ....{
        ....s[i].getdata();
    ....}
    ....pos = s1.pos(s, 3);
    ....cout << "maximum scoring is: " << endl;
    ....s[pos].putdata();
}

int main()
{
    ....arrayofObjects();
    ....return 0;
}
```

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```
c:\Users\Bimal\Desktop>cd "c:\Users\Bimal\Desktop\" && g++ array_of_objects.cpp -o array_of_objects && "c:\Users\Bimal\Desktop\"array_of_objects
Enter your Roll:
23
Enter your Name:
bimal
Enter your Total Marks:
1234
Enter your Roll:
45
Enter your Name:
bim
Enter your Total Marks:
124256
Enter your Roll:
78
Enter your Name:
almirah
Enter your Total Marks:
123
maximum scoreing is:
Roll: 45
Name: bim
Total Marks: 124256
```

Exception handling:

```
C: > Users > Bimal > Desktop > exception_handling.cpp > main()
#include <iostream>
using namespace std;
// This function can only throw ints, chars, and doubles.
void Xhandler(int test) throw(int, char, double)
{
    if (test == 0)
        throw test; // throw int
    if (test == 1)
        throw 'a'; // throw char
10    if (test == 2)
        throw 123.23; // throw double
}
int main()
{
    cout << "start\n";
    try
    {
18        Xhandler(2);
    }
20    catch (int i)
    {
        cout << "Caught an integer\n";
    }
    catch (char c)
    {
        cout << "Caught char\n";
    }
    catch (double d)
    {
30        cout << "Caught double\n";
    }
    cout << "end";
    return 0;
}
```

PROBLEMS

OUTPUT

TERMINAL

DEBUG CONSOLE

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PROBLEMS

OUTPUT

TERMINAL

DEBUG CONSOLE

```
start
```

```
Caught double
```

```
end
```

```
c:\Users\Bimal\Desktop>
```


Pure Virtual Functions:

C: > Users > Bimal > Desktop > pure_vf.cpp > Base > Base(int)

```
#include <iostream>
using namespace std;

class Base
{
protected:
    ....int x;

public:
    ....virtual void fun() = 0;
    ....Base(int i)
    ....{
    ....    x = i;
    ....    cout << "base constructor\n";
    ....}
};

class Derived: public Base
{
    ....int y;

public:
    ....Derived(int i, int j) : Base(i) { y = j; }
    ....void fun() { cout << "x = " << x << ", y = " << y << '\n'; }
};

int main(void)
{
    ....Derived d(0, 0);
    ....d.fun();

    ....Base *ptr = new Derived(4, 4);
    ....ptr->fun();
    ....return 0;
}
```

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

```
c:\Users\Bimal\Desktop>cd "c:\Users\Bimal\Desktop\" && g++ pure_vf.cpp -o pure_vf && "c:\Users\Bimal\Desktop\pure_vf.exe"
base constructor
x = 0, y = 0
base constructor
x = 4, y = 4
c:\Users\Bimal\Desktop>
```

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Only Vpropel problems attached here.

Other practice problems:

[bimal-parajuli/c_cpp at master \(github.com\)](https://github.com/bimal-parajuli/c_cpp_at_master)

remaining codes will be updated by tomorrow in master branch.