

EXPERIMENT NUMBER –Practical 9.1

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Class/Group:- CSE 26-B

Semester:- 2nd

D.O.P – 2ND MAY 2021

SUBJECT – OOPS WITH C++ LAB

TOPIC OF EXPERIMENT- WAP to calculate sum of marks of n students of a class inputted via dynamic memory allocation.

ALGO / FLOWCHART

1. Including the bits/stdc++.h header file in our code to use its functions.
2. Include the std namespace in our program to use its classes without calling it.
3. Create main function.
4. Allocate Dynamic memory to store the marks of student using the “new ” statement.
5. Using the for loop take marks of student as input from the user.
6. Use another for loop to find the sum of marks and then display it.

PROGRAM CODE:-

```
#include <iostream>
#include <conio.h>
using namespace std;
int main( )
{
    int sum=0, N;
    //clrscr();
    cout<<"Enter number of students in Class:\n";
    cin>>N;
    int *a = new int[N];
    cout<<"\nEnter "<<N<<"Students Marks: "<<endl;
    for(int i=0; i<N; i++)
    cin>>a[i];
    cout<<"Enter Marks are:"<<endl;
    for(int i=0; i<N; i++)
    {
        cout<<a[i]<<endl;
        sum = sum + a[i]; // sum += a[i];
    }
    cout<<"Total Sum: "<<sum;
    delete(a);
    getch();
}
```

OUTPUT:-

```
Enter number of students in Class:
3

Enter 3Students Marks:
86
78
65
Enter Marks are:
86
78
65
Total Sum: 229

...Program finished with exit code 0
Press ENTER to exit console.
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

(Kindly Not down the compile time errors encountered)

1) Removal of semicolon(;

Compilation failed due to following error(s).

```
main.cpp: In function 'int main()':
main.cpp:35:1: error: expected ';' before 'cout'
cout<<"Enter Marks are:"<<endl;
  ^~~~~
```

2) Removal of small parentheses()

Compilation failed due to following error(s).

```
main.cpp:37:1: error: 'forint' was not declared in this scope
forint i=0; i<N; i++
  ^~~~~~
main.cpp:37:13: error: 'i' was not declared in this scope
forint i=0; i<N; i++
  ^
  ^
```

PROGRAMS' EXPLANATION (in brief):-

1. First create all variables required in the program .
2. Ask the user to enter the total numbers of elements and store it in the variable count.
3. Allocate memory to the int pointer variable . The memory allocation is same as the number of elements user will enter .
4. Use one for loop and read the element count.
5. Ask the user to enter the element and store it in arr . arr is working like an array here .
6. Also, increment the sum . sum contains the total sum of all elements user will enter .
7. After the loop is completed, we have the total sum saved in variable sum Print out this value to the user .
8. We have allocated the memory previously for the arr variable . Since the program is completed, we don't require this memory any longer . Release the memory using free method and exit from the program .

EXPERIMENT NUMBER –Practical 9.2

Student's Name:- RAJDEEP JAISWAL

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Class/Group:- CSE 26-B

Semester:- 2nd

D.O.P – 2ND MAY 2021

SUBJECT – OOPS WITH C++ LAB

Topic of Experiment- WAP to allocate memory dynamically for an object of a given class using class's constructor.

ALGORITHM / FLOWCHART

1. Including the bits/stdc++.h header file in our code to use its functions.
2. Include the std namespace in our program to use its classes without calling it.
3. Create a class and the make a constructor and print "Constructor" within it.
4. Make a Destructor and print "Destructor" within it.
5. Now in the main function dynamic memory will be allocated using the new statement.

PROGRAM CODE:-

```
#include <iostream>

using namespace std;

class stud {
public:
stud()
{
cout<< "Constructor Used" <<endl;
}
~stud()
{
cout<< "Destructor Used" <<endl;
}
};

int main()
{
stud* S = new stud[6];
delete[] S;
}
```

OUTPUT:-

```
Constructor Used
Constructor Used
Constructor Used
Constructor Used
Constructor Used
Constructor Used
Destructor Used
Destructor Used
Destructor Used
Destructor Used
Destructor Used
Destructor Used
```

```
...Program finished with exit code 0
Press ENTER to exit console.
```

ERRORS ENCOUNTERED DURING PROGRAM'S EXECUTION

(Kindly Not down the compile time errors encountered)

1) Removal of semicolon(;

Compilation failed due to following error(s).

```
main.cpp:31:4: error: expected ';' before '}' token
    }
    ^
```

2) Removal of small paren

Compilation failed due to following error(s).

```
~stud
^
main.cpp:35:9: error: cannot declare '::~main' to be a global variable
int main(
  ^
main.cpp:39:8: error: expected primary-expression before '**' token
  stud* S = new stud[6];
  ^
main.cpp:39:10: error: 'S' was not declared in this scope
  stud* S = new stud[6];
  ^
main.cpp:39:25: error: expected '}' before ';' token
  stud* S = new stud[6];
  ^
main.cpp:39:25: error: expected ')' before ';' token
main.cpp:41:1: error: expected unqualified-id before 'delete'
delete[] S;
^~~~~~
main.cpp:43:1: error: expected declaration before '}' token
}
^
```

PROGRAMS' EXPLANATION (in brief):-

In this program we have created array of object dynamically. The first object is ptr[0], second is ptr[1] and so on . For each object creation default constructor is called and for each object memory is allocated to pointer type variable by new operator.

LEARNING OUTCOMES

- Identify situations where computational methods would be useful.
- Approach the programming tasks using techniques learnt and write pseudo-code.
- Choose the right data representation formats based on the requirements of the problem.
- Use the comparisons and limitations of the various programming constructs and choose the right one for the task.

EVALUATION COLUMN (To be filled by concerned faculty only)

Sr. No.	Parameters	Maximum Marks	Marks Obtained
1.	Worksheet Completion including writing learning objective/ Outcome	10	
2.	Post Lab Quiz Result	5	
3.	Student engagement in Simulation/ Performance/ Pre Lab Questions	5	
4.	Total Marks	20	