



Malla Reddy Engineering College

An UGC Autonomous Institution, Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad, Accredited by NAAC with 'A++' Grade (3rd Cycle), Maisammaguda (H), Medchal-Malkajgiri, Secunderabad Telangana-500100 www.mrec.ac.in

DEPARTMENT OF Artificial Intelligence and Machine Learning

REQUISITION LETTER

Date: 02.12.2022

To

The Principal,
Malla Reddy Engineering College (Autonomous),
Maisammaguda, Dhulapally,
Secunderabad – 500100.


Sub - Seeking Permission to conduct Value Added Course on “Programming with C++”- Reg.

Respected Sir,

In connection with the training programs being organized to get knowledge on recent technologies, department of AIML is planning to organize a 30 hours value added program on “Programming with C++” from 05.12.2022 to 10.12.2022 for II Year Students. Hence I requested you to grant permission to organizing the value added Program on “Programming with C++” in the above said dates.

Thank you Sir,

Yours Sincerely,


Principal
Malla Reddy Engineering College
Maisammaguda, Dhulapally,
(Post Via Kompally), Secunderabad-500100.




HoD-AIML



Malla Reddy Engineering College

(An UGC Autonomous Institution, Approved by AICTE, New Delhi & Affiliated to JNTUH, Hyderabad). Accredited 3rd time by NAAC with 'A++' Grade, Maisammaguda, Medchal - Malkajgiri District, Secunderabad, Telangana State – 500100, www.mrec.ac.in


DEPARTMENT OF Artificial Intelligence and Machine Learning

Date:02-12-22

CIRCULAR

All the Students of II-I are hereby informed that Value Added Course on “**Programming with C++**” from 05.12.2022 to 10.12.2022 is being organized by the Department of AIML. The Resource Person for the course is Mr.Vijay Kumar, Trainer in Synxa IT Pvt Ltd. Students are advised to register names to the program coordinator Ms.P.Swapna on or before 03-12-22 and utilize this opportunity to enhance the Skills by attending the program.

The detailed schedule of the program will be displayed in the notice board.


Principal
Malla Reddy Engineering College
Maisammaguda, Dhuleepally,
(Post Via Kompally), Secbad-500100.




HOD-AIML

Copy to:

- 1) Circulation in Students classroom
- 2) All HOD'S
- 3) Notice Boards
- 4) PA to Principal for filling

About the Institution

Malla Reddy Engineering College (Autonomous) is one of the reputed engineering colleges in Hyderabad, Telangana. **MREC (A)** is part of Malla Reddy Group of Institutions (MRGI), founded by Sri. Ch. Malla Reddy, currently Hon'ble Minister, Labor and Employment, Factories, Women and Child Welfare and Skill Development, Govt. of Telangana State. The college is situated in a serene, lush green environment in Maisammaguda, Gundlapochampally, Medchal(M), Medchal-Malkajgiri District Telangana- 500100.

The college was established in 2002 and is an autonomous institution approved by UGC and affiliated to JNTUH. The college is re-accredited by NAAC with 'A++' Grade (III Cycle) and was conferred autonomous status by JNTUH in 2011 and by UGC in 2014 for a period of 6 years. Our eligible UG and PG programs received NBA accreditation and some of them received reaccreditation too. The college caters to wide ranging aspirations and goals of student communities by offering new courses in UG- Cyber Security, Artificial Intelligence and Machine Learning, Data Science and IOT along with programs in various streams of Engineering & Technology and Management. It boasts of world-class infrastructure and well-equipped laboratories in all departments and is skillfully and smartly guided by Dr. Ramaswami Reddy, Principal, MREC(A) who have a rich teaching and industrial experience.

Advisory Committee:

Chief Patrons: Sri. Ch. Malla Reddy, Minister-Telangana State-India.
Founder Chairman
Patrons: Sri. Ch. Mahender Reddy Secretary, MRGI
Dr. Ch. Bhadra Reddy
President, MRGI
Co-Patrons: **Dr. Ramaswami Reddy**
Principal, MREC(A)
Convener: **Dr. Deena Babu .M**
HOD AIML
Coordinator: **Ms. P. Swapna**
Assistant Professor, IT

Organizing Committee:

Ms. M. Sandhya Vani, Assistant Professor, IT
Ms. Devi Sravani, Assistant Professor, IT
Mr. N. Satish Kumar, Assistant Professor, IT

About the Department:

The Department of Information Technology was established in 2007 with intake of 60 Students and with specific Vision, Mission and Goals. From the day college was affiliated to Jawaharlal Nehru Technological University, Hyderabad (JNTUH) and recognized by AICTE, New Delhi the Department works under the Rules and Regulations JNTUH and AICTE. The course curriculum proposed by the JNTUH will be implemented strictly. However, if required the Department proposes modifications or inclusions of new courses in the curriculum to the JNTUH for consideration.

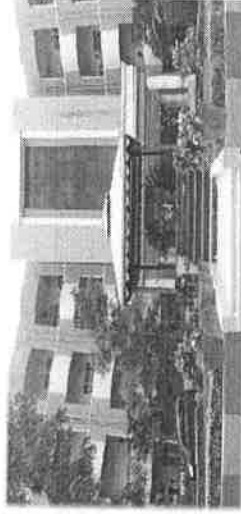
Malla Reddy Engineering College
Maisammaguda, Medchal(M)

(Post Via Company), Sec-2, Malkajgiri Dist.



A One-Week Training program (Value Course)

On
"Programming with C++"
(05th to 10th, DEC 2022)
In Association with
SYNXA IT Pvt Ltd



Organized by
Department of
Artificial Intelligence and Machine Learning

MALLA REDDY ENGINEERING COLLEGE
(AUTONOMOUS) MAIN CAMPUS
An UGC Autonomous Institution, Hyderabad
AICTE & Affiliated to JNTUH-Hyderabad
Reaccredited by NAAC with 'A++' Grade (III)
Maisammaguda (H), Gundlapochampally
Medchal (M), Medchal - Malkajgiri District
Telangana - 500100, India.



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Department of Artificial Intelligence and Machine Learning

“Value-Added Course on Programming with C++”

Schedule

Day & Date	10:00-11:10AM	11:10-11:20AM	11:20AM-1:00PM	1:00-2:00PM	2:00-4:00PM
05/12/2022	Introduction	Tea Break	Tokens,Data Types,operators	Lunch Break	Control Structures
06/12/2022	Type Conversion		Virtual Functions		overloading ,member functions
07/12/2022	Arrays		Static Data members, returning objects		Constructors ,Destructors
08/12/2022	Inheritance and types Multilevel, Hierarchal		Exception Handling		Virtual Base class, Polymorphism
09/12/2022	Virtual Functions, Overriding		Array index out of bounds, class template		New & Delete operators
10/12/2022	questionnaire		Recap		EXAM


Coordinator


HOD




Principal
Malla Reddy Engineering College
Maisammaguda, Dhulapally,
(Post Via Kompally), Sec-bad-500100.



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Maisammaguda (H), Medchal-Malkajiri District, Secunderabad,
Telangana State - 500100, www.mrec.ac.in

Department of Artificial Intelligence and Machine Learning

Value Added Course Enrolled List

"Programming with C++"

(05.12.2022 to 10.12.2022)

Sl.No	Roll No	Name
1	21J41A7301	A HEMANTH
2	21J41A7302	A SRAVYA
3	21J41A7303	ADLAPALLY BHARADWAJ
4	21J41A7306	ALLAM ABHIRAM
5	21J41A7307	ALWALA SWETHA
6	21J41A7308	ANVITHA NADIPELLY
7	21J41A7309	BALASANI PREETHAM
8	21J41A7310	BANOTH SRINIVAS
9	21J41A7311	BEGARY SHREEVARDHAN
10	21J41A7312	BETHI SRAVANI
11	21J41A7313	BHEEMANAPALLI REKHA
12	21J41A7314	BOREDDY OBUREDDY
13	21J41A7315	CH SATHVIK REDDY
14	21J41A7316	CHIDURALA. SUSHRUTH
15	21J41A7317	CHIDURALA MUKESH
16	21J41A7318	CHINTHA DASARATHA RAMI REDDY
17	21J41A7319	CHINTALA ABHISHEK REDDY

18	21J41A7320	CHINTHA HARI HARAN
19	21J41A7321	CHIRUNOMULA YASASWI
20	21J41A7322	DURGAM DILIP
21	21J41A7323	EMBARI SAHITH
22	21J41A7324	GOSHKE ANIRUDH
23	21J41A7325	JAMMIGUMPULA VENKATA KARTHIK
24	21J41A7326	JANGAM SAI SANJANA
25	21J41A7327	JANGILI SATHVIK
26	21J41A7328	JODU SATHWIKA
27	21J41A7329	K SRI LAKSHMI
28	21J41A7330	KAMMARI SREEJA
29	21J41A7331	KARNE MAHESH
30	21J41A7332	KARNE SAILEELA
31	21J41A7333	KATTULA NIKHIL RAJ KUMAR
32	21J41A7334	KAVULURU SHIVANI
33	21J41A7335	KHANDAVALLI PRAMODINI AAKARSHITHA
34	21J41A7336	KOCHERLA SRICHARAN
35	21J41A7337	KOTAM RAJ KUMAR
36	21J41A7338	KOTAMARTHI MANOJ
37	21J41A7339	KURAKULA JASHWANTH
38	21J41A7340	M KARTHIKEYAN REDDY
39	21J41A7341	M KRISHNA KANTH
40	21J41A7342	MALLIPEDDI SAHITH
41	21J41A7344	MIDIDODDI VIVEK KUMAR

42	21J41A7346	NARUKULLA SNEHITH CHOWDARY
43	21J41A7347	NENAVATH SAANKI
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49	21J41A7353	PuppalaHemanth
50	21J41A7354	RUPANI MALLESH
51	21J41A7355	RAPAKA VINAY
52	21J41A7356	RAYARAM SHIVA PRASAD
53	21J41A7357	S HARIKA
54	21J41A7359	SYED FARHANA SULTANA
55	21J41A7360	T HARI PRASAD
56	21J41A7361	THANUKU AKSHITH
57	21J41A7362	U SRINIVAS
58	21J41A7363	UPPALAPATI GOWTHAM
59	21J41A7364	UPPUNUTI USHASANDHYA
60	21J41A7365	VOYEPURAM SAI VYASA TEJA
61	22J45A7302	B VENKATESH
62	22J45A7303	KURA SAI KIRAN
63	22J45A7304	TEJAVATH RADHIKA
64	22J45A7305	CHALLA AJAY
65	22J45A7306	GUDIPADU VENKATA SAI NARAYANA DEEP

Principal
Malla Reddy Engineering College
Malsammaguda, Dhulapally,
(Post Via Kompally), Sec. Bad-300100.



HOD/AMML



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Department of Artificial Intelligence and Machine Learning

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“Programming with C++”

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Principal
Malla Reddy Engineering College
Hyderabad



HOD: IIML

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Lecture 05:	Basics of C++
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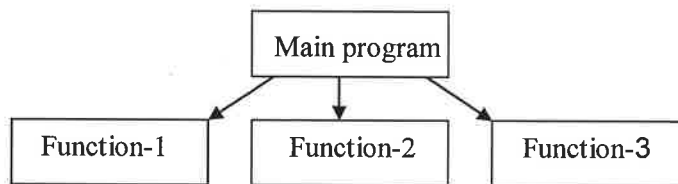
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Procedure Oriented Programming Language

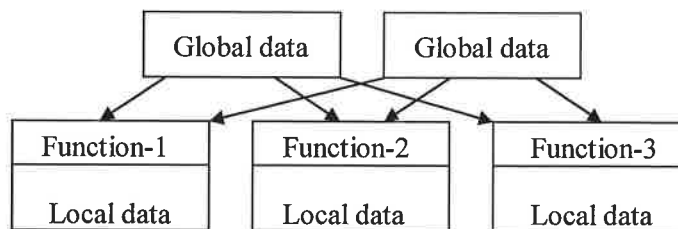
In the procedure oriented approach, the problem is viewed as sequence of things to be done such as reading , calculation and printing.

Procedure oriented programming basically consist of writing a list of instruction or actions for the computer to follow and organizing these instruction into groups known as functions.



The disadvantage of the procedure oriented programming languages is:

1. Global data access
2. It does not model real word problem very well
3. No data hiding



Characteristics of procedure oriented programming:

1. Emphasis is on doing things(algorithm)
2. Large programs are divided into smaller programs known as functions.
3. Most of the functions share global data
4. Data move openly around the system from function to function
5. Function transforms data from one form to another.
6. Employs top-down approach in program design

LECTURE-3

BASIC CONCEPTS OF OBJECTS ORIENTED PROGRAMMING

1. Objects
2. Classes
3. Data abstraction and encapsulation
4. Inheritance
5. Polymorphism
6. Dynamic binding
7. Message passing

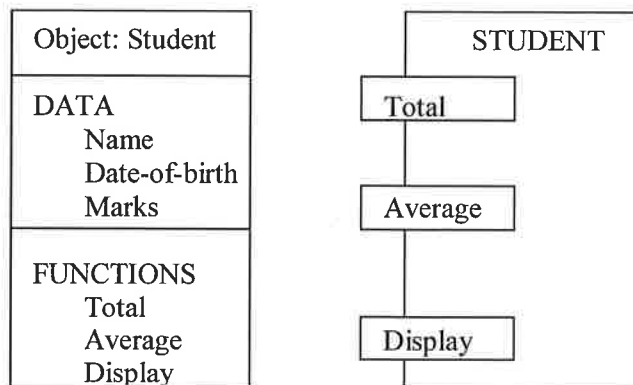
OBJECTS

Objects are the basic run-time entities in an object-oriented system. They may represent a person, a place, a bank account, a table of data or any item that the program must handle.

The fundamental idea behind object oriented approach is to combine both data and function into a single unit and these units are called objects.

The term objects means a combination of data and program that represent some real word entity. For example: consider an example named Amit; Amit is 25 years old and his salary is 2500. The Amit may be represented in a computer program as an object. The data part of the object would be (name: Amit, age: 25, salary: 2500)

The program part of the object may be collection of programs (retrive of data, change age, change of salary). In general even any user –defined type-such as employee may be used. In the Amit object the name, age and salary are called attributes of the object.



CLASS:

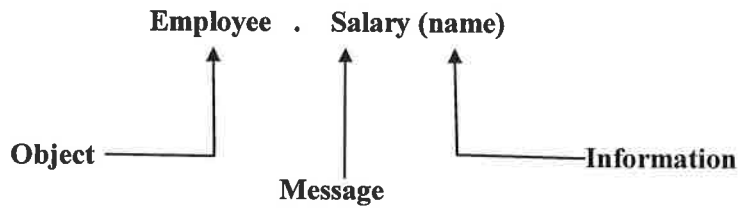
A group of objects that share common properties for data part and some program part are collectively called as class.

In C ++ a class is a new data type that contains member variables and member functions that operate on the variables.

MESSAGE PASSING :

An object oriented program consists of a set of objects that communicate with each other.

A message for an object is a request for execution of a procedure and therefore will invoke a function (procedure) in the receiving object that generates the desired result. Message passing involves specifying the name of the object, the name of the function (message) and information to be sent.



LECTURE-5

Basics of C++

C ++ is an object oriented programming language, C ++ was developed by Jarney Stroustrup at AT & T Bell lab, USA in early eighties. C ++ was developed from c and simula 67 language. C ++ was early called 'C with classes'.

C++ Comments:

C++ introduces a new comment symbol //(double slash). Comments start with a double slash symbol and terminate at the end of line. A comment may start any where in the line and what ever follows till the end of line is ignored. Note that there is no closing symbol.

The double slash comment is basically a single line comment. Multi line comments can be written as follows:

```
// this is an example of  
// c++ program  
// thank you
```

The c comment symbols /* ...*/ are still valid and more suitable for multi line comments.

```
/* this is an example of c++ program */
```

Output Operator:

The statement `cout <<"Hello, world"` displayed the string with in quotes on the screen. The identifier `cout` can be used to display individual characters, strings and even numbers. It is a predefined object that corresponds to the standard output stream. Stream just refers to a flow of data and the standard Output stream normally flows to the screen display. The `cout` object, whose properties are defined in `iostream.h` represents that stream. The insertion operator `<<` also called the 'put to' operator directs the information on its right to the object on its left.

Return Statement:

In C++ `main ()` returns an integer type value to the operating system. Therefore every `main ()` in C++ should end with a `return (0)` statement, otherwise a warning or an error might occur.

Input Operator:

The statement
`cin>> number 1;`

is an input statement and causes. The program to wait for the user to type in a number. The number keyed in is placed in the variable `number1`. The identifier `cin` is a predefined object in C++ that corresponds to the standard input stream. Here this stream represents the key board.

The operator `>>` is known as get from operator. It extracts value from the keyboard and assigns it to the variable on its right.



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Department of Artificial Intelligence and Machine Learning

Value Added Course On

“Programming with C++”

Date: 10/12/2022

Examination Question Paper

1. Which of the following is not a fundamental data type in C++?

- A) int
- B) float
- C) string
- D) char

2. What does the 'volatile' keyword in C++ signify?

- A) It indicates that a variable is constant and cannot be modified.
- B) It instructs the compiler to avoid optimizations involving the variable.
- C) It specifies the visibility of variables in different scopes.
- D) It denotes a variable that can only be accessed by certain functions.

3. What is the output of the following code snippet?

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


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```
int main()
{
    int x = 10;

    int&y = x;

    y = 20;

    cout<< x <<endl;

    return 0;
}
```

A) 10

B) 20

C) Compilation Error

D) Undefined Behavior

4. What is the result of the following code snippet?

```
#include <iostream>

using namespace std;

int main()
{
    intarr[5] = {1, 2, 3, 4, 5};

    int *ptr = arr;
```

```
cout<< *(ptr + 2) <<endl;

return 0;

}
```

A) 1

B) 2

C) 3

D) 4

5. Which operator is used for dynamic memory allocation in C++?

A) new

B) malloc

C) alloc

D) alloc_mem

6. What is the output of the following code snippet?

```
#include <iostream>
```

```
using namespace std;
```

```
class Base
```

```
{
```

```
public:
```

```
virtual void display()
```

```
{  
  
    cout<< "Base Display" <<endl;  
  
}  
  
};  
  
class Derived : public Base  
  
{  
  
public:  
  
    void display() override  
  
{  
  
    cout<< "Derived Display" <<endl;  
  
}  
  
};  
  
int main() {  
  
    Base *ptr = new Derived();  
  
    ptr->display();  
  
    return 0;  
  
}
```

A) Base Display

B) Derived Display

C) Compilation Error

D) Undefined Behavior

7. What will be the output of the following code?

```
#include <iostream>
```

```
using namespace std;
```

```
void swap(int&a, int&b)
```

```
{
```

```
    int temp = a;
```

```
    a = b;
```

```
    b = temp;
```

```
}
```

```
int main()
```

```
{
```

```
    int x = 5, y = 10;
```

```
    swap(x, y);
```

```
    cout<< "x: " << x << ", y: " << y << endl;
```

```
    return 0;
```

```
}
```

A) x: 5, y: 10

B) x: 10, y: 5

C) x: 0, y: 0

D) Compilation Error

8. Which statement is true about C++ references?

A) References cannot be null.

B) References can be re-assigned to refer to different variables after initialization.

C) References occupy additional memory space compared to pointers.

D) References are used for dynamic memory allocation.

9. What does the 'constexpr' keyword signify in C++?

A) It specifies a function to be executed at compile time.

B) It is used to declare constants.

C) It denotes a function that can be overridden in derived classes.

D) It is used to allocate memory dynamically.

10. What is the output of the code snippet below?

```
#include <iostream>
```

```
using namespace std;
```

```
class A {
```

```
public:
```

```
virtual void show() {  
  
    cout<< "Class A" <<endl;  
  
}  
  
};  
  
class B : public A {  
  
public:  
  
    void show() {  
  
        cout<< "Class B" <<endl;  
  
    }  
  
};  
  
int main() {  
  
    A *ptr = new B();  
  
    ptr->show();  
  
    return 0;  
  
}
```

- A) Class A
- B) Class B
- C) Compilation Error
- D) Undefined Behavior

11. Which among the following statements is correct regarding 'iostream' and 'cstdio' in C++?

- A) 'iostream' and 'cstdio' both provide functions for console input and output.
- B) 'iostream' and 'cstdio' are interchangeable and can be used interchangeably in any C++ program.
- C) 'iostream' is used for console input and output, while 'cstdio' is used for file input and output.
- D) 'cstdio' is used for console input and output, while 'iostream' is used for file input and output.

12. What does the following code snippet output?

```
#include <iostream>

using namespace std;

int main()

{

    int x = 5;

    int *ptr = &x;

    cout<< *ptr<<endl;

    *ptr = 10;

    cout<< x <<endl;

    return 0;

}
```

A) 5, 10

B) 10, 10

C) 5, 5

D) 10, 5

13. What is the purpose of the 'friend' keyword in C++?

A) It signifies a function or class that can access private and protected members of another class.

B) It is used to declare a function or class inside another class.

C) It denotes a function or class that is inherited from a base class.

D) It specifies a function or class that cannot be overridden.

14. What is a pure virtual function in C++?

A) A function that has no definition in the class declaration.

B) A function that cannot be overridden by derived classes.

C) A function that is defined in a base class and overridden in derived classes.

D) A function that can be called only by the base class.

15. What is the output of the following code snippet?

```
#include <iostream>
```

```
using namespace std;
```

```
int main() {
```

```
    int i = 0;
```

```
    for (; i < 5; ++i) {
```

```
    if (i == 3)
        break;
}

cout<< i <<endl;

return 0;
}
```

A) 3

B) 4

C) 5

D) Compilation Error

16. Which operator is used to access the member functions and variables of a class through a pointer in C++?

A) . (dot operator)

B) -> (arrow operator)

C) :: (scope resolution operator)

D) : (colon operator)

17. What is the purpose of the 'const' keyword in C++?

A) It declares a constant variable that cannot be modified after initialization.

B) It specifies a function that doesn't change the state of an object.

C) It denotes a class that cannot be inherited.

D) It creates a copy of an object for use in a function.

18. What will be the output of the following code snippet?

```
#include <iostream>

using namespace std;

int main() {

    intarr[] = {1, 2, 3, 4, 5};

    int *ptr = arr;

    cout<<ptr[3] <<endl;

    return 0;

}
```

A) 1

B) 2

C) 3

D) 4

19. Which statement regarding C++ namespaces is true?

A) Namespaces provide a way to define global variables in C++.

B) Namespaces prevent variable names from being used multiple times in a program.

C) Namespaces avoid naming conflicts by encapsulating code into a named scope.

D) Namespaces restrict access to functions within a program.

20. What is the function of the 'typeid' operator in C++?

A) It determines the type of a variable or an expression.

B) It checks the memory address of a variable.

C) It converts a variable from one data type to another.

D) It allocates memory dynamically.

21. What will be the output of the following code snippet?

```
#include <iostream>

using namespace std;

class Base {

public:

    Base() {

        cout<< "Base Constructor" <<endl;

    }

    ~Base() {

        cout<< "Base Destructor" <<endl;

    }

};

int main() {
```

```
Base* ptr = new Base();  
  
delete ptr;  
  
return 0;  
  
}
```

- A) Base Constructor
- B) Base Destructor
- C) Base Constructor, Base Destructor
- D) Base Destructor, Base Constructor

22. Which of the following statements about function overloading in C++ is true?

- A) Function overloading allows multiple functions with the same name but different return types.
- B) Overloaded functions must have different names but can have the same number and types of parameters.
- C) Function overloading is not allowed in C++.
- D) Overloaded functions must have the same number of parameters but can have different types.

23. What does the 'static' keyword signify in C++?

- A) It specifies a function that is shared among all objects of a class.
- B) It declares a variable that cannot be modified after initialization.
- C) It defines a variable that retains its value across function calls.
- D) It indicates a function or variable accessible only within the same source file.

24. What is the purpose of the 'new' operator in C++?

- A) To deallocate memory dynamically.
- B) To allocate memory for an object or variable dynamically.
- C) To initialize a variable with a default value.
- D) To declare a constant variable.

25. Which of the following is true about inheritance in C++?

- A) Inheritance allows a derived class to inherit all private members of the base class.
- B) Multiple inheritance is not supported in C++.
- C) Inheritance allows a derived class to inherit the constructors of the base class.
- D) Inheritance restricts access to the protected members of the base class.


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DEPARTMENT OF Artificial Intelligence and Machine Learning


Date: 12.12.2022

Report of Value Added Course on Programming with C++

A six days program on **Programming with C++** was organized by the department of Information Technology for II years. The resource person of the program is Mr. Vijay Kumar. The course involves the basic concepts of c++, Programming using oops. The event was coordinated by Ms. P. Swapna, Asst. Professor, AIML Department from 05.12.2022 to 10.12.2022 and 65 students.

After the training programme, the students learned the following,

- The importance of studying this course and the features supported by c++.
- The Programming techniques using c++.
- Acquired practical knowledge of the course.


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Certificate

*This is to certify that Mr./Ms.B.SHREEVARDHAN
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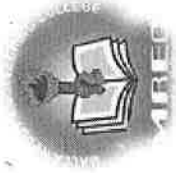
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DEPARTMENT OF Artificial Intelligence and Machine Learning

Title of the Session: programming with C++

Department & Designation: AIML / student

Date of the Session: 10/12/22

S.No		Excellent	Very Good	Good	Average
1	The Session Objective were stated clearly and met		✓		
2	The Workshop was well Organized		✓		
3	The information and / or skills presented were relevant and useful for Career	✓			
4	The presenter responded to questions effectively?	✓			
5	The overall assessment of the Session	✓			
6	The session content met your Expectations		✓		

Excellent:4 Very Good:3 Good:2 Average:1

Suggestions If any:

Need more sessions.
Explanations are good.



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5	The overall assessment of the Session	✓			
6	The session content met your Expectations	✓			

Excellent:4 Very Good:3 Good:2 Average:1

Suggestions If any:

Over all experience was good.