Daily Assessment format

Date: 23/06/2020
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Course: C++ programming
Usn: 4AL17EC037
Topic: Data types, Arrays, pointer
Github repository: jyothi-courses

Forenoon session details

Report

Data types

→ A data type specifies the type of data that a variable can store such as integer, floating, character etc. there are 4 types of data types in c++ language.

1 Basic data type - int, char, float, double
2 Derived data type - arrays, pointer etc
3 Enumeration data type - enum
4 user defined data type - structure

Basic data type

→ The basic data types are integer-based & floating-point based. c++ language supports both signed & unsigned liter the memory size of basic data types may change according to 32 or 64 bit operating system.

Arrays

→ Like other programming languages, array in c++ is a group of similar types of elements that have contiguous memory location. in c++ std:: array is a container that encapsula - fes fixed size assays. in c++, array inda starts from 0. we can store only fixed set of elements in c++ array.

Advantages of c++ array

→ code optimization (less code)
→ Random Access
→ easy to traverse data
→ easy to manipulate data

Disadvantages of c++ array
→ fixed size

Array types
there are 2 types of arrays in c++ programming
1. single dimensional or
2. multi dimensional array

Single dimensional array
→ Let's see a simple ex: of c++ array, where we are going to create, initialize & traverse array.

```
#include<iostream>
using namespace std;
int main()
{ int arr[5]={10,0,20,0,30}
  for(int i=0;i<5;i++)
  { cout<<arr[i]<<"\n";
  }
}
```

Multi dimensional array
→ Let's see a simple ex: of c++ array

```
#include<iostream>
using namespace std;
int main()
{ int test[3][3];
    test[0][0]=5;
    test[1][1]=15;
    test[1][2]=20;
    test[2][0]=30;
    test[2][2]=10;
    for(int j=0;j<3;++j)
    { for(int k=0;k<3;++k)
      { cout<<test[j][k]<<" ";
      }
      cout<<"\n";
    }return 0;
```

Pointers

The pointer in c++ language is a variable, it is also known as locater or indicator that points to an address of a value

Advantages of pointer

- pointer reduces the code & improves the performance, it is used to retrieving strings, trees etc & used with arrays, structures & pointer. we can return multiple values from fun using pointer
- it makes you able to access any memory location in the computer memory

Usage of pointers

1. Dynamic memory allocation
2. Arrays, fun's & structure

Pointer program to swap two without using third variable

```
#include<iostream>
using namespace std;
int main()
{ int a=20,b=10,*p1=&a,*p2=&b;
  Cout<<"Before swap: *p1="<<*p1<<"*p2"<<*p2<<endl;
  *p1=*p1+*p2;
  *p2=*p1-*p2;
  *p1=*p1-*p2;
  Cout<<"After swap *p1="<<*p1<<"*p2="<<*p2<<endl;
  return 0;
}
```

Date: 23/06/2020
Course: c++ programming
Topic: functions
Github
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Afternoon session details

report

Functions

→ The fun in c++ language is also known as procedure or subroutine in other programming languages. to perform any task, we can create function. A function can be called many times. it provides modularity & code reusability.

Advantages of function in c

→ code reusability

→ code optimization

it makes the code optimized, we don't need to write much code. suppose, you have to check 3 nos whether it is prime no or not. without using function. but if you use fun, you need to write the logic only once & you can reuse it several times.

types of fun

1 library function: are the funs which are declared in the c++ header file such as ceil(x), cos(x), exp(x), etc.

2 user defined funs.

C++ fun2.ex:

```
#include<iostream>
using namespace std;
void func(){
    static int i=0;
        int j=0;
        i++;
        j++;
        cout<<" i="<<i<<" j="<<j<<endl;
}
int main()
{
  func();
  func();
}
```