2Dec2022

Unit (I)

1) introduction to programing concept
2) Datatypes, Datainput, for output, operators
3) Dissusion making, loops, arrays, strings
4) unified modeling languages
5) classes, abtraction, and encapusation

Unit (II)

1) Constructor and distructors
2) working with objects
3) polymorphism
4) modeling relationship in class diagram.

Unit (III)

1) Inheritance
2) modeling relationship
3) runtime polymorphism
4) pointer's
5) file handeling
6) Aplying (opp) solves real life application.

books - (object oriented programing with c++
Author:- Balagurusamy E 8th edition
MC Graw Hill

Introduction to programing Concept.

* programing techniques
  1. machinelevel programing language
  2. Assembly language programing
  3. high level programing.

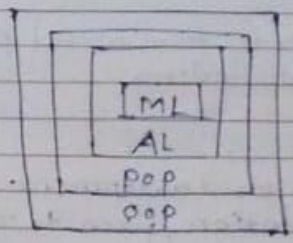
1. machinelevel language -
   - machine code or machine language, is a set of instructions, executed directly by computer's (cpu)

2. Assembly language -
   - Assembly language is a low level programing language., for a computer or other programing divice
   - There is very strong genelly one to one corel pondance between the language & architutere machine code instructions
   - Assembly language is converted into executable machine code by utility program refered to as assembler

3. high level programing
   - high level language is any programing language that enables development of the program in which similar programing text.
   - It foccouses more on programing language rather than underline hardware computer such as memory, addersing and register utillation.

high level language

1. procedure oriented programing (pop)
2. object oriented programing (oop)



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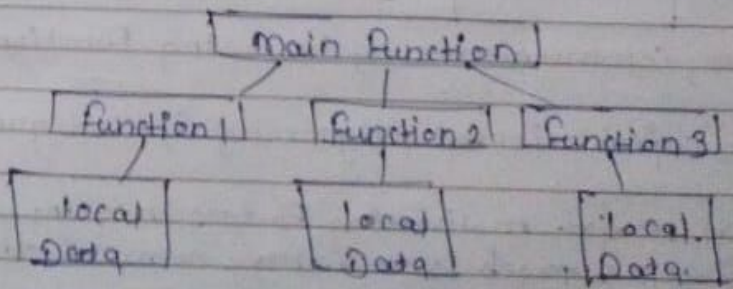
1. procedure oriented programing (pop)
   eg:- COBOL, FORTRAN
   - focous on the function (reading, writing, calculating)

self

Disadvanges -
1. The data moves freely (No data hiding)

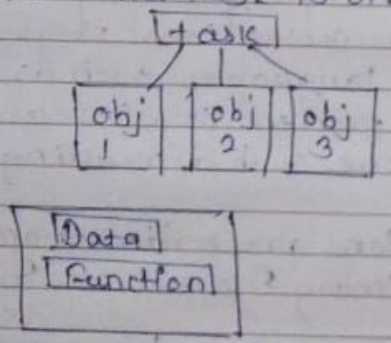
- procedure oriented programing
  - It is called as conventional programing which uses high level languages such as COBOL, FORTRAN
  - In (pop) the problem is view as a sequence of things to be done such as reading, calculating and printing.
  - A No. of functions are writen to accomptions this task, so the primary focous is on functions.



Disadvantages:-
1) It does not model real world problem very well
2) There is no data hiding.

Analysis of pop-
- Concentration is on development of function, very little attention given to the data that is been used by function
- Data moves freely betweems functions where there is chance for the intridier, to hack the data
- thus critical applications does not be designed by this approach

2) oop - focous on the data the hiding of data is present - The task is divided into objects.



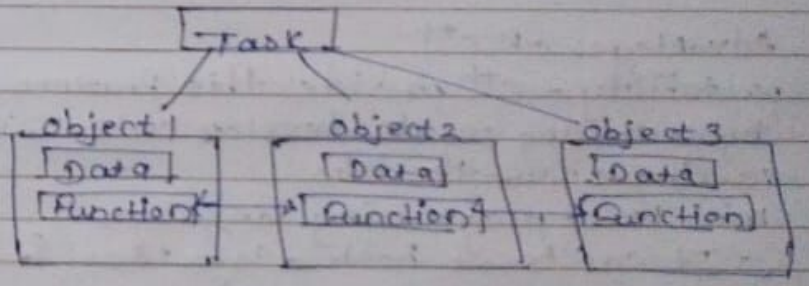
eg:- obj - student
Data - Roll No, Name, DOB
Function - calculating the %, Avg

- They communicate by the using functions

* (oop) object oriented programing (paradigam)

- The major motivating factors in a invension of oop approch is to remove some of the flaws. Incounted in producre app roch.
- oop treads data as a critical elements in a program development & does not allow data to flow freely around the system.
- It ties the data more colsely to the fu
- that operates on it and protects the da accidentional modification from outside fu
- It provides data hiding fitures.

• opp working -
- opp allow decomposition of a problem in entities called objects and then builts data around this objects
- data of an object can be access only by functions accosiated with that object
- however the function of 1 object can acc the function of other object



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Advantages -
① protability ② mid level programing langua
③ object oriented ④ wide range of applicat

DA
① No garbage collection
② No more Security
③ Complex
④ there are some data type lact of algebric data type.

5 Dec 2022 Syntax:-

```
#include <iostream.h>
#include <conio>
using namespace std;   <- optional (object, variable)
int main() ==> (//main function)
{
object ==> cout << "Hello Frcs";
return 0;   operator
}
```

* c++ :-
- c++ was developed by Bjarne Stroustrup at bell laboratories in 1979
- since c++ is an attempt to add oop figures in earlier it was called as ('c with objects') lettered in 1985 Stroustrup name it as c++

* Advantages of c++
(1) protability - c++ provides this feature of protability by allowing us to develop codes without caring about the h/w
(2) mid level programing language
- It can treat both a low level & high level language which help to developed games & desktop applications where as features of low level language helps to make kernel & drives
(3) object oriented:-
- The oop concept like polymorphism, encapsulation Inheritance & abtraction in c++ the bigest advantage over other programing languages.
(4) multi/paradigm -
- paradigm refers to planing involved in program it is consone with logic, style & the way have we proceed with the program c++ is a multiparadigm programing language as it follow, 3 paradigm -
(1) generic - using a single idea that serves multiples purpose
(2) imperative - using step that change the state of the program
(3) object oriented - using method and class for reusability and modularity
(5) wide range of application -
- c++ is useful to make GUI's as well as games also it useful to develop graphics and real time algebric situation hence c++ is beneficial in very stream

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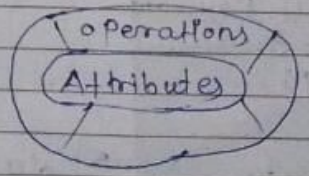
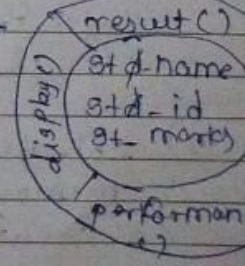
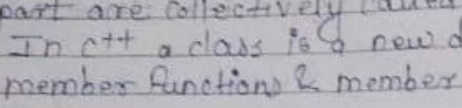
* Basic concepts of oop's
1) objects - are the basic runtime entities in an object oriented system they may be represented as a person, a place, a bank account, table of data or any item that the program must handel
- The fundamental idea behide oop approch is to combine both data & function into a single unit & this units are called objects
- The term objects means a combination of data & program that represent some real world entity



eg.



2) classes - It is group of objects that share common properties for data part & some program part are collectively called a class.
- In C++ a class is a new datatype that contains member functions & member variables
- eg:-



objects	class
1) object is an instance of a class	1) class is a blue print or templete from which obj are created.
2) objects in real world entity are pen, laptop, mobile etc.	2) class is a group of similar obj.
3) object is a physical entity	3) class is a logical entity
4) object is created through new keyword eg:- student s1 = new student()	4) class is declared by using class keyword eg:- class A
5) object's allocate memory when it's created	5) class does not allocate memory when it created.

3) Data abtraction :-
- Data abtraction refers to the act of representing essential fitures without including the backgroud details or explations
eg:- abtraction shows only important thiks to the user and hides the internal detail
eg:- when we ride a bike we only know the some features about bike which are use for rideing. but internal details of functionality is hiden (not known) by us.

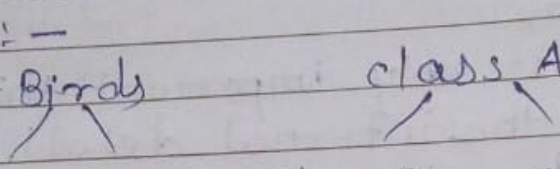
4) Data encapsulation :-
- The wrapping of data & functions into a single unit (class) is known as encapsulation.
- The data is not accesible to outside world & only those functions which are wrapped in the class can access it.
- This functions provide interface between the objects data & program.
- eg:-

class : student
Attribute : student.name, st.roll, st.id,
functions : result(), enroll(), performance()

5) inheritance :-
- It is the process by which objects of 1 class acquries the property of another class, here inheritance provides the idea of reusehality this means that we can add additional features to an exiting class without modifing it.
- This is possible by desiging a new class which will have compied features of both the classes

- The existing class is called as base class or super class & the new class is called as subclass or derived class.

eg:-



Applications

(1) object oriented database:- eg:- real no. int.
(2) real time system design :- ATM
(3) Simulation & modeling :-
(4) Hypertext & Hypermedia :-
(5) AI expert media :-

* object base programing language :-
ADA - (pascal)