HW: Differentiate between static and dynamic binding.

Static Binding (Early Binding)

Definition:

Static binding ka matlab hai **method ya function call ka resolution compile-time par ho jaana**. Matlab, compiler pehle se hi decide kar leta hai ki kaunsa function execute hoga.

Kaise Kaam Karta Hai?

- Yeh **function overloading** aur **operator overloading** ke saath kaam karta hai.
- Compiler function ya method ko directly bind kar deta hai, isliye yeh fast hota hai.
- Static methods aur normal function calls mein hota hai.

CODE PART

```
#include <iostream>

using namespace std;


class A {

public:

   void display() {  // Yeh normal function hai, static binding hogi

      cout << "Static Binding" << endl;

   }

};


int main() {

   A obj;

   obj.display();  // Compiler compile-time par hi decide karega ki "display()" function call hoga

   return 0;

}
```

Dynamic Binding (Late Binding)

Definition:

Dynamic binding ka matlab hai **method ya function call ka resolution runtime par hona**. Matlab, function ka decision **execution ke waqt** hota hai.

Kaise Kaam Karta Hai?

- **Method overriding** ke case mein hota hai.
- **Virtual functions** ka use hota hai (C++ mein).
- **Polymorphism** ko enable karta hai, isliye flexible hota hai.
- Runtime pe decide hota hai, isiliye thoda slow hota hai.

CODE PART

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

class A {
public:
   virtual void display() { // Virtual function bana diya
      cout << "Dynamic Binding in A" << endl;
   }
};

class B : public A {
public:
   void display() override { // Overriding ho rahi hai
      cout << "Overridden Method in B" << endl;
   }
};

int main() {
   A* obj = new B(); // Pointer base class ka, object derived class ka
   obj->display();  // Yeh runtime par decide hoga kaunsa function call hoga
   return 0;
}
```