Shri Vile Parle Kelavani Mandal's

INSTITUTE OF TECHNOLOGY

DHULE (M.S.)

DEPARMENT OF COMPUTER ENGINEERING

Subject : Object Oriented Proframing Lab

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Class: SY. Comp. Engg. **Batch :** S-3 **Division:** B

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Title : Programs on Inheritance and Polyorphism

Remark

Signature

Code:

Inheritance

1]Single Inheritance :

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

class A
{
public:
   A()
   {
      cout << "Single inheritance";
   }
```

```
};

class B : public A
{
};

int main()
{
    B b;
}
```

2] Multiple Inheritance :

```
#include <iostream>
using namespace std;
class A
{
public: A()
{
cout << "Func A\n";
}
};
class B
{
```

```
public: B()
{
cout << "Func B\n";
}
};
class C : public A, public B
{
public:
};
int main() {
C c;
return 0;
}
```

3] Multilevel Inheritance :

```
#include <iostream>
using namespace std;
class A
{
public: A()
{
cout << "Func A\n";
}
};
```

```
class B : public A
{
public: B()
{
cout << "Func B\n";
}
};
class C : public B
{
public:
};
int main() {
C c;
return 0;
}
```

4] Hierarchical Inheritance :

```
#include <iostream>
using namespace std;
class Animal {
public:
   void speak()
   {
      cout<< "Animal makes a sound.";
```

```
    }
};

class Dog : public Animal {
public:
    void speak()
    {
        cout<< "Dog says: Woof!\n";
    }
};

class Cat : public Animal {
public:
    void speak()
    {
        cout<< "Cat says: Meow!";
    }
};

int main() {
    Dog myDog;
    Cat myCat;

    myDog.speak();
    myCat.speak();

    return 0;
```

```
}
```

Polymorphism

```
#include<iostream>
using namespace std;
const float pi=3.14;

float area(float n,float b,float h)

{
   float ar;
   ar=n*b*h;
   return ar;
}

float area(float r)
{
   float ar;
   ar=pi*r*r;
   return ar;
}

float area(float l,float b)
{
   float ar;
   ar=l*b;
   return ar;
}

int main()
{
   float b,h,r,l;
   float result;

   cout<<"\nEnter the Base and Height of Triangle: \n";
   cin>>b>>h;

   result=area(0.5,b,h);
```

```
    cout<<"\nArea of Triangle: "<<result<<endl;

    cout<<"\nEnter thr Length and Breadth of Rectangle: \n";

    cin>>l>>b;

    result=area(l,b);

    cout<<"\nArea of Rectangle: "<<result<<endl;

    return 0;
}
```

Output:

Inheritance

1]Single

```
Single inheritance
Process returned 0 (0x0)   execution time : 0.048 s
Press any key to continue.
```

2]Multiple

```
Func A
Func B

Process returned 0 (0x0)   execution time : 0.032 s
Press any key to continue.
```

3]Multilevel

```
Func A
Func B

Process returned 0 (0x0)   execution time : 0.034 s
Press any key to continue.
```

4]Heirarchical

```
Dog says: Woof!
Cat says: Meow!
Process returned 0 (0x0)   execution time : 0.038 s
Press any key to continue.
```

5]Polymorphism

```

Enter the Base and Height of Triangle:
10
12

Area of Triangle: 60

Enter thr Length and Breadth of Rectangle:

10
12

Area of Rectangle: 120

Process returned 0 (0x0)   execution time : 25.841 s
Press any key to continue.
```