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DURING CONSTRUCTION- WHEN A BASE CLASS OBJECT IS BEING CONSTRUCTED, THE DERIVED CLASS OBJECT HAS YET TO BE COME INTO EXISTENCE

DURING DESTRUCTION - WHEN THE BASE CLASS OBJECT IS BEING DESTRUCTED, THE DERIVED CLASS HAS ALREADY CEASED TO EXIST

REMEMBER THE ORDER IN WHICH BASE AND DERIVED CLASS CONSTRUCTORS AND DESTRUCTORS ARE CALLED!

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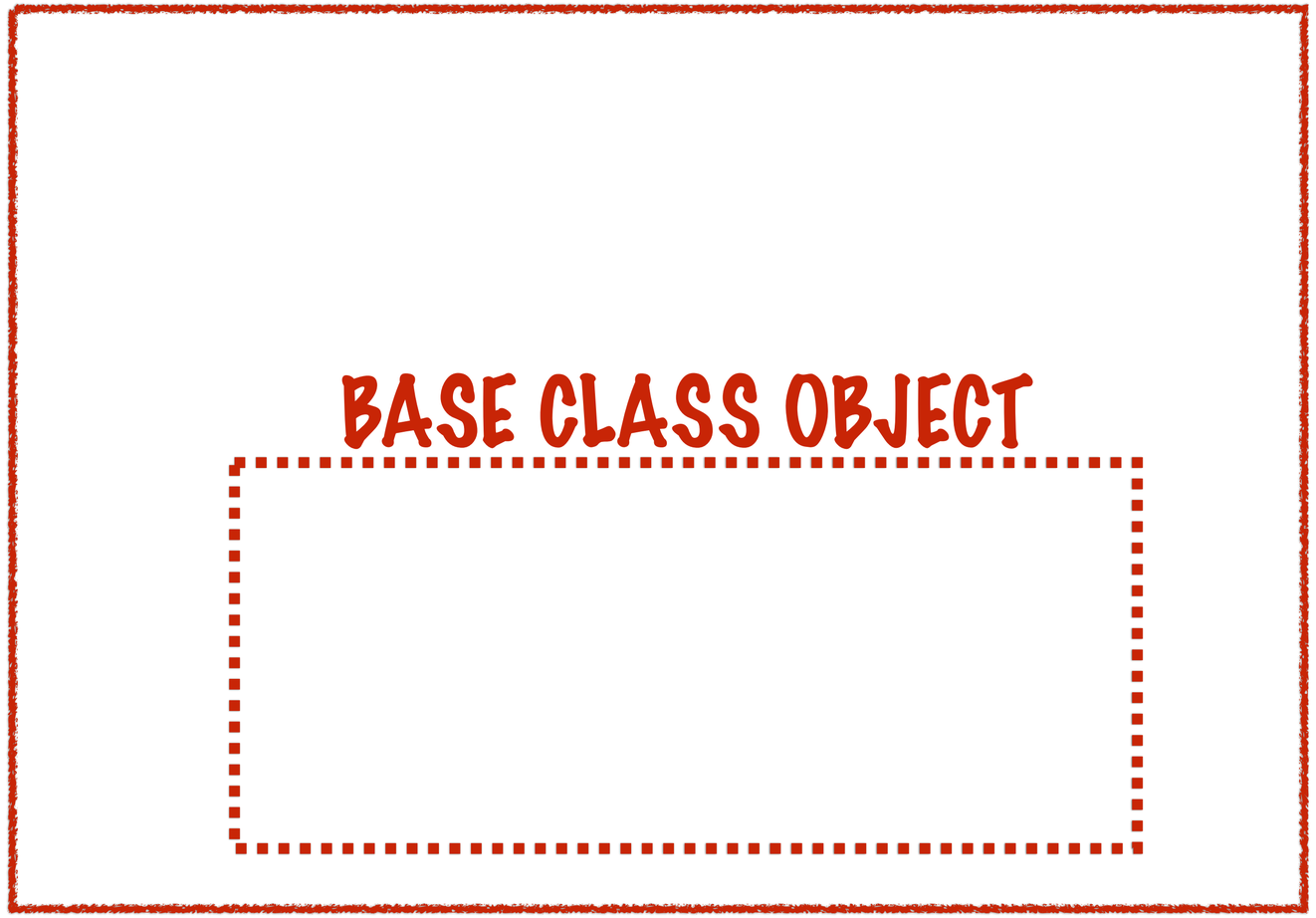
ORDER OF CONSTRUCTOR CALLS



ORDER OF DESTRUCTOR CALLS

HERE IS A BAD BASE CLASS

```
class Shape
{
private:
public:
  string shapeType;
  virtual void print()
  {
    cout << "I am a shape" << endl;
  }
  Shape()
  {
    shapeType = "Unknown";
    cout << "Inside the Shape constructor" << endl;
    print(); //BAD! Virtual function call inside constructor
  }

  ~Shape()
  {
    cout << "Inside the Shape destructor" << endl;
    print(); // BAD! Virtual function call inside destructor
  }
};
```

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```

IT HAS A VIRTUAL FUNCTION..

THAT IT CALLS BOTH IN THE CONSTRUCTOR AND IN THE DESTRUCTOR

HERE IS A THE CORRESPONDING DERIVED CLASS

```
class Rectangle : public Shape
{
public:
  int rectangle_length;
  int rectangle_breadth;
  virtual void print()
  {
    cout << "I am a rectangle" << endl;
  }
  Rectangle()
  {
    cout << "Inside the Rectangle constructor" << endl;
  }
  ~Rectangle()
  {
    cout << "Inside the Rectangle destructor" << endl;
  }
};
```

NOTHING NOTEWORTHY HERE..

HERE IS A THE CORRESPONDING DERIVED CLASS

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  }
  ~Rectangle()
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    cout << "Inside the Rectangle destructor" << endl;
  }
};
```

IMPLEMENTS THE VIRTUAL FUNCTION, THAT'S ABOUT IT.

NOW WE INSTANTIATE THIS POOR, HAPLESS DERIVED CLASS -

```
Rectangle s1;
```

AND WHAT GETS CALLED?

```
[Vitthals-MacBook-Pro:~ vitthalsrinivasan$ ./a.out
Inside the Shape constructor
I am a shape
Inside the Rectangle constructor
Inside the Rectangle destructor
Inside the Shape destructor
I am a shape
```

THE WRONG VERSIONS OF THE FUNCTION!