

VNUHCM - UNIVERSITY OF SCIENCE
FACULTY OF INFORMATION TECHNOLOGY



HOMEWORK REPORT

WEEK 05: ASSIGNMENT 03 CONSOLE

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Contents

1	Output printed to console	2
2	Brief explanation	4
2.1	Constructors	4
2.1.1	Base class	4
2.1.2	Derived class	4
2.2	Function calls	5
2.3	Destructor	5

1 Output printed to console

Base constructor-0 param
Base constructor-1 param
Base constructor-1 param
Base constructor-0 param
DerivedA constructor-0 param
Base constructor-0 param
DerivedA constructor-1 param
Base constructor-0 param
DerivedA constructor-2 params
Base constructor-0 param
Base constructor-0 param
DerivedA constructor-2 params
Base constructor-0 param
DerivedB constructor-0 param
Base constructor-0 param
DerivedB constructor-1 param
Base constructor-1 param
DerivedB constructor-2 params
Base copy constructor
DerivedB copy constructor
Base constructor-1 param
DerivedB constructor-2 params
Base copy constructor
Function f
Base destructor
Base copy constructor
Function f
Base destructor
Base copy constructor
Function f
Base destructor
Base destructor
DerivedB destructor
Base destructor
DerivedB destructor
Base destructor
DerivedB destructor
Base destructor
DerivedB destructor
Base destructor
DerivedA destructor
Base destructor

DerivedA destructor
Base destructor
DerivedA destructor
Base destructor
DerivedA destructor
Base destructor
Base destructor
Base destructor

2 Brief explanation

2.1 Constructors

2.1.1 Base class

The constructors of Base class are called when an object with type Base are initialized.

```
Base b1;
```

Base constructor-0 param → Base's default constructor

```
Base b2(3);
```

Base constructor-1 param → Base's 1-parameter constructor

```
Base* pb = new Base(1);
```

Base constructor-1 param → Base's 1-parameter constructor

2.1.2 Derived class

When the constructors of Derived class is called, the constructors of Base class are called first, then, the assignments in the derived constructors will be executed.

DerivedA class:

```
DerivedA da1;
```

Base constructor-0 param → Base's default constructor

DerivedA constructor-0 param → DerivedA's default constructor

```
DerivedA da2(2);
```

Base constructor-0 param → Base's default constructor

DerivedA constructor-1 param → DerivedA's 1-parameter constructor

```
DerivedA da3(2, 3);
```

Base constructor-0 param → Base's default constructor

DerivedA constructor-2 params → DerivedA's 2-parameter constructor

```
DerivedA da4(da2);
```

Base constructor-0 param → Base's default constructor

This DerivedA class' copy constructor should've called the copy constructor of the Base class. However, it only called the default one because it didn't include the **Base(da)** in its definition.

```
pb = new DerivedA(4, 5);
```

Base constructor-0 param → Base's default constructor

DerivedA constructor-2 params → DerivedA's 2-parameter constructor

DerivedB class:

```
DerivedB db1;
```

Base constructor-0 param \rightarrow Base's default constructor

DerivedB constructor-0 param

```
DerivedB db2(2.7);
```

Base constructor-0 param \rightarrow Base's default constructor

DerivedB constructor-1 param \rightarrow DerivedB's 1-parameter constructor

```
DerivedB db3(3, 2.7);
```

Base constructor-1 param \rightarrow Base's 1-parameter constructor

DerivedB constructor-2 params \rightarrow DerivedB's 2-parameter constructor

```
DerivedB db4(db2);
```

Base copy constructor \rightarrow Base's copy constructor

DerivedB copy constructor \rightarrow DerivedB's copy constructor

```
pb = new DerivedB(4, 5);
```

Base constructor-1 param \rightarrow Base's 1-parameter constructor

DerivedB constructor-2 params \rightarrow DerivedB's 2-parameter constructor

2.2 Function calls

Base copy constructor \rightarrow Make a copy when pass by value an object with Base type

Function $f \rightarrow$ Execute the instruction in the function F

Base destructor \rightarrow Delete the copy when out of scope

2.3 Destructor

The destructors are called in the reverse order with the constructors when objects are out of scope or deleted.