南京大学软件学院

2015秋 软件工程 快递系统实践

**耦合度量文档**

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# 更新记录

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# 1.度量内容说明

## CBO

## DAC

## McCabe

McCabe度量法是由托马斯·麦克凯提出的一种基于程序控制流的复杂性度量方法。McCabe复杂性度量又称环路度量。它认为程序的复杂性很大程度上取决于程序图的复杂性。单一的顺序结构最为简单，循环和选择所构成的环路越多，程序就越复杂。这种方法以图论为工具，先画出程序图，然后用该图的环路数作为程序复杂性的度量值。程序图是退化的程序流程图。也就是说，把程序流程图的每一个处理符号都退化成一个结点，原来连接不同处理符号的流线变成连接不同结点的有向弧，这样得到的有向图就叫做程序图。

程序图仅描述程序内部的控制流程，完全不表现对数据的具体操作分支和循环的具体条件。因此，它往往把一个简单的IF语句与循环语句的复杂性看成是一样的，把嵌套的IF语句与CASE的复杂性看成是一样的。

根据图论，在一个强连通的有向图G中，环的个数V(G)由以下公式给出：

V(G)=m-n+2p其中，V(G)是有向图G中环路数，m是图G中弧数，n是图G中结点数，p是图G中强连通分量个数。在一个程序中，从程序图的入口点总能到达图中任何一个结点，因此，程序总是连通的，但不是强连通的。为了使图成为强连通图，从图的出口点到入口点加一条用虚线表示的有向边，使图成为强连通图。这样就可以使用上式计算环路复杂性了.

## NOC

## DIT

说明：

1、以上资料参考《软件工程与计算Ⅱ》以及互联网信息，并非原创

2、本次测量采用了metrics工具，人工将结果制表，源结果在re.xml中

# 2.BL层分解

## 2.1AccountBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| AccountBLLoginImpl | 2 | 0 | 0 | 0 | 1 |
| 调用其他类 1  被其他类调用 1 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| AccountBLManageImpl | 9 | 0 | 1 | 0 | 1 |
| 调用其他类 5  被其他类调用 4 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| AccountBLRemindImpl | 4 | 0 | 0 | 0 | 1 |
| 调用其他类 2  被其他类调用 2 |  |

## 2.2ConfigurationBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| ConfigutrationBLController | 12 | 3 | 1 | 0 | 1 |
| 调用其他类 6  被其他类调用 6 | Distance  Money  Salary |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Distance | 4 | 0 | 0 | 0 | 0 |
| 调用其他类 2  被其他类调用 2 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Money | 8 | 0 | 0 | 0 | 0 |
| 调用其他类 4  被其他类调用 4 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Salary | 4 | 0 | 0 | 0 | 0 |
| 调用其他类 2  被其他类调用 2 |  |

## 2.3DeliverBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| DeliverBLController | 12 | 2 | 1 | 0 | 1 |
| 调用其他类 6  被其他类调用 6 | DeliverForm  Deliver |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| DeliverForm | 8 | 0 | 0 | 0 | 0 |
| 调用其他类 4  被其他类调用 4 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Deliver | 4 | 0 | 0 | 0 | 0 |
| 调用其他类 2  被其他类调用 2 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| CheckDeliverImpl | 4 | 0 | 0 | 0 | 0 |
| 调用其他类 2  被其他类调用 2 |  |

## 2.4ExamineBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| ExamineBLSubmitImpl | 2 | 0 | 1 | 0 | 1 |
| 调用其他类 1  被其他类调用 1 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| ExamineBLManageImpl | 9 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 5 |  |

## 2.5FinanceBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| BankAccountBLImpl | 16 | 0 | 1 | 0 | 1 |
| 调用其他类 8  被其他类调用 8 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| FinanceChartBLImpl | 6 | 1 | 1 | 0 | 1 |
| 调用其他类 2  被其他类调用 4 | ChartMaker |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| ChartMaker | 4 | 0 | 1 | 0 | 1 |
| 调用其他类 1  被其他类调用 3 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| PaymentBLImpl | 11 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 7 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| RevenueBLImpl | 11 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 7 |  |

## 2.6FormatCheck

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| FormatCheckImpl | 15 | 0 | 1 | 0 | 1 |
| 调用其他类 0  被其他类调用 15 |  |

## 2.7InitBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| InitBLController | 30 | 7 | 1 | 0 | 1 |
| 调用其他类 14  被其他类调用 16 | InitialDataVO StoreModelBLService;  BankAccountBLService  ManageblCarService  ManageblStaffService  ManageblCenterService  ManageblHallService |

## 2.8LogBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| LogblImpl | 4 | 0 | 1 | 0 | 1 |
| 调用其他类 1  被其他类调用 3 |  |

## 2.9ManageBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| CarManage | 10 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 6 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| CenterManage | 12 | 0 | 1 | 0 | 1 |
| 调用其他类 6  被其他类调用 6 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| HallManage | 12 | 0 | 1 | 0 | 1 |
| 调用其他类 5  被其他类调用 7 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StaffManage | 11 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 7 |  |

## 2.10OrderBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| OrderBLController | 14 | 1 | 1 | 0 | 1 |
| 调用其他类 8  被其他类调用 6 | Predicter |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Predicter | 1 | 0 | 1 | 0 | 1 |
| 调用其他类 0  被其他类调用 1 |  |

## 2.11ReceiveBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| ReceiveBLImpl | 11 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 7 |  |

## 2.12SearchBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| SearchBLController | 3 | 2 | 1 | 0 | 1 |
| 调用其他类 2  被其他类调用 1 | OrderHelper  Intergrate |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| OrderHelper | 5 | 0 | 1 | 0 | 1 |
| 调用其他类 2  被其他类调用 3 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| Intergrate | 10 | 0 | 1 | 0 | 1 |
| 调用其他类 8  被其他类调用 2 |  |

## 2.13StoreBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StockBLImpl | 8 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 4 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StoreInBLImpl | 10 | 0 | 1 | 0 | 1 |
| 调用其他类 4  被其他类调用 10 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StoreIOBLImpl | 6 | 0 | 1 | 0 | 1 |
| 调用其他类 3  被其他类调用 3 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StoreModelBLImpl | 13 | 0 | 1 | 0 | 1 |
| 调用其他类 6  被其他类调用 7 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| StoreOutBLImpl | 6 | 0 | 1 | 0 | 1 |
| 调用其他类3  被其他类调用 3 |  |

## 2.14TransportBL

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| TransportHallBLImpl | 18 | 0 | 1 | 0 | 1 |
| 调用其他类 9  被其他类调用 9 |  |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 类名 | CBO | DAC | McCabe | NOC | DIT |
| TransportCenterBLImpl | 10 | 0 | 1 | 0 | 1 |
| 调用其他类 8  被其他类调用 2 |  |