Project 5

Team 07

SER516 - Software Agility

Contributors

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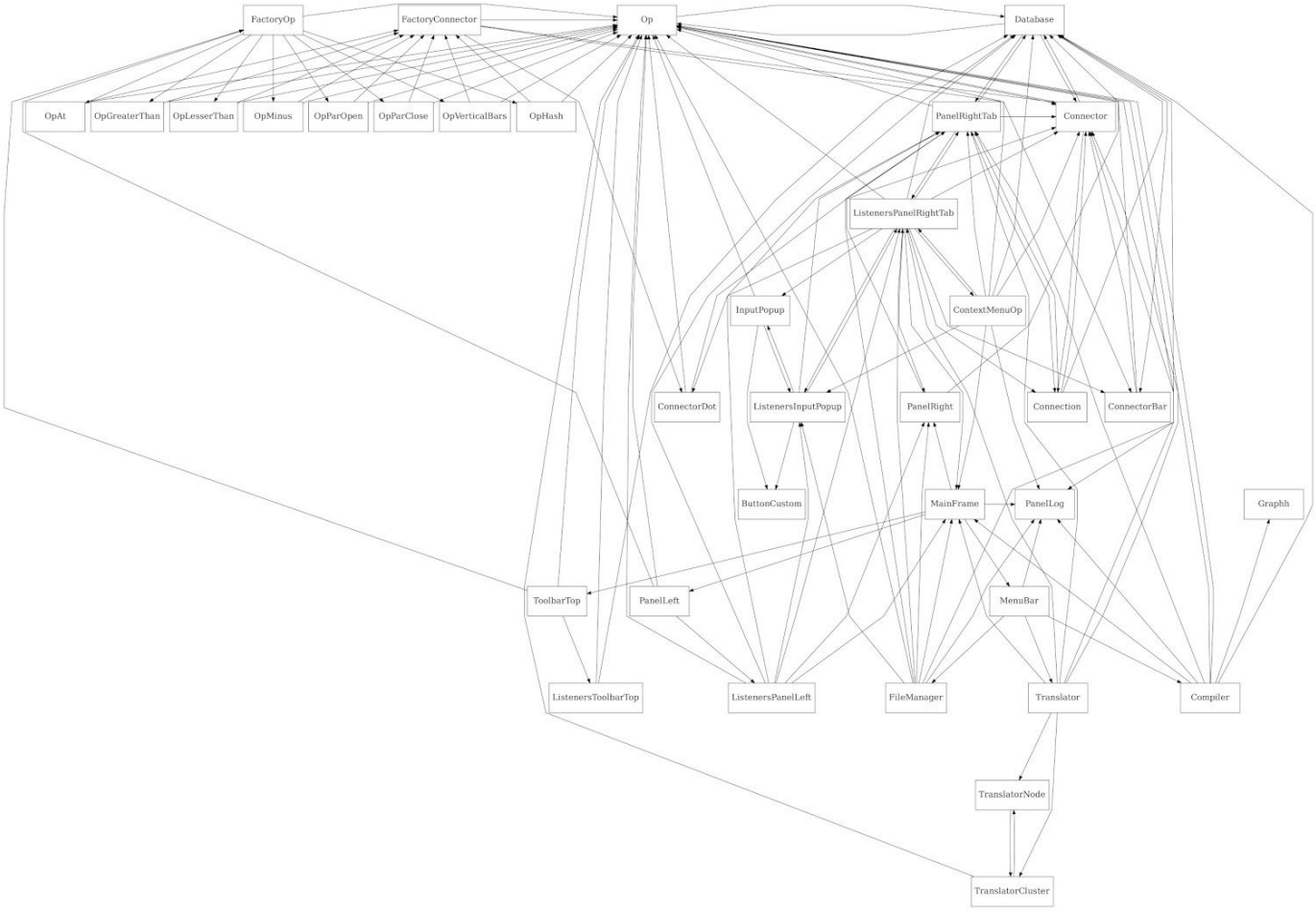
Class Diagram

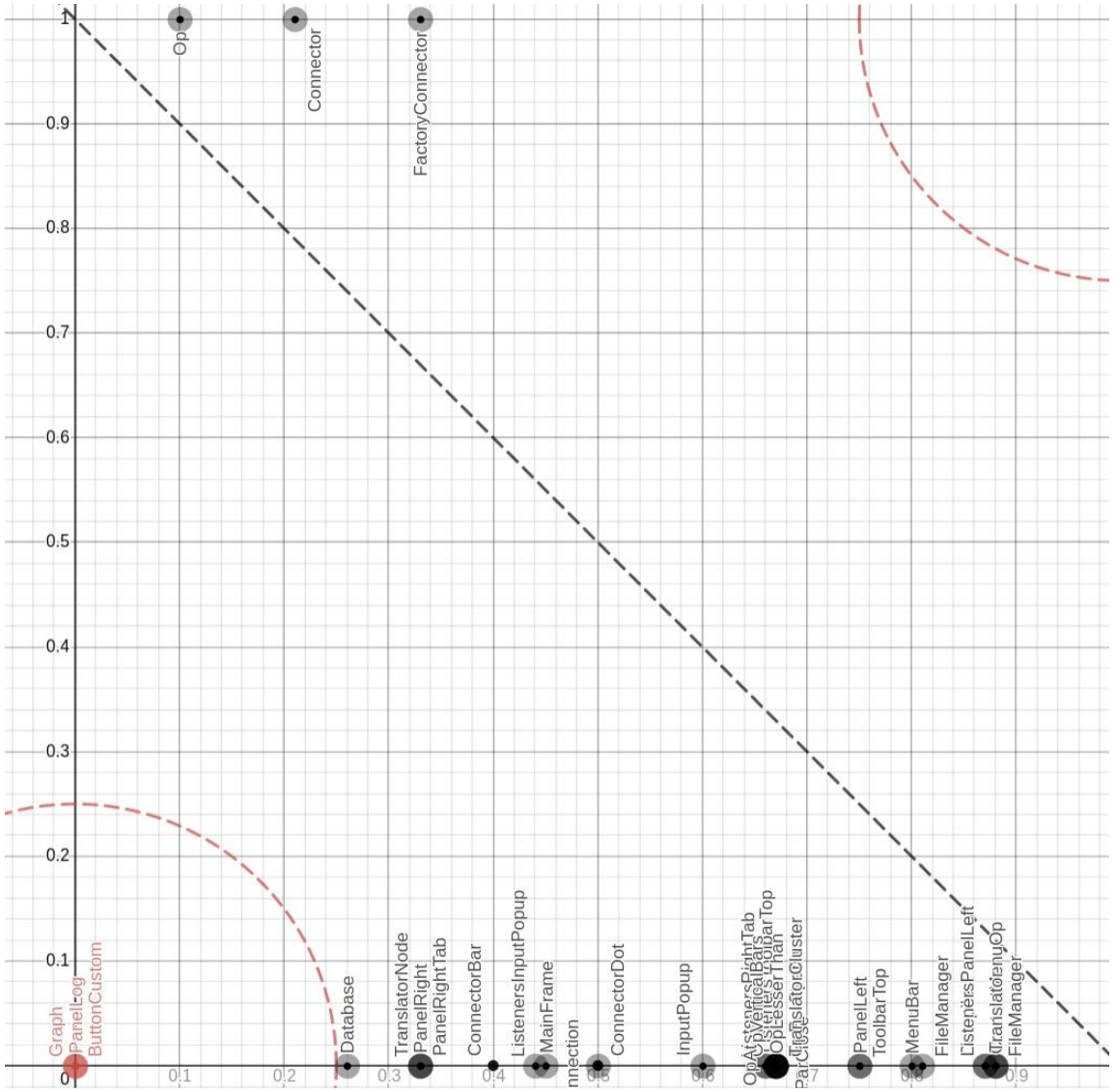


Metrics - Ca (In), Ce(Out), I, A, D

S.No.	Class	Ce(out)	Ca(in)	I	A	D	|D|
1	ButtonCustom	0	2	0.00	0.00	-1.00	1.00
2	Compiler	7	1	0.88	0.00	-0.13	0.13
3	Connection	3	3	0.50	0.00	-0.50	0.50
4	Connector	3	11	0.21	1.00	0.21	0.21
5	ConnectorBar	2	3	0.40	0.00	-0.60	0.60
6	ConnectorDot	2	2	0.50	0.00	-0.50	0.50
7	ContextMenuOp	8	1	0.89	0.00	-0.11	0.11
8	Database	4	11	0.27	0.00	-0.73	0.73
9	FactoryConnector	4	8	0.33	1.00	0.33	0.33
10	FactoryOp	9	2	0.82	0.00	-0.18	0.18
11	FileManager	8	1	0.89	0.00	-0.11	0.11
12	Graph	0	1	0.00	0.00	-1.00	1.00
13	InputPopup	3	2	0.60	0.00	-0.40	0.40
14	ListenersInputPopup	4	5	0.44	0.00	-0.56	0.56
15	ListenersPanelLeft	7	1	0.88	0.00	-0.13	0.13
16	ListenersPanelRightTab	12	6	0.67	0.00	-0.33	0.33
17	ListenersToolbarTop	2	1	0.67	0.00	-0.33	0.33

18	MainFrame	5	6	0.45	0.00	-0.55	0.55
19	MenuBar	4	1	0.80	0.00	-0.20	0.20
20	Op	3	26	0.10	1.00	0.10	0.10
21	OpAt	2	1	0.67	0.00	-0.33	0.33
22	OpGreaterThan	2	1	0.67	0.00	-0.33	0.33
23	OpHash	2	1	0.67	0.00	-0.33	0.33
24	OpLesserThan	2	1	0.67	0.00	-0.33	0.33
25	OpMinus	2	1	0.67	0.00	-0.33	0.33
26	OpParClose	2	1	0.67	0.00	-0.33	0.33
27	OpParOpen	2	1	0.67	0.00	-0.33	0.33
28	OpVerticalBars	2	1	0.67	0.00	-0.33	0.33
29	PanelLeft	3	1	0.75	0.00	-0.25	0.25
30	PanelLog	0	6	0.00	0.00	-1.00	1.00
31	PanelRight	2	4	0.33	0.00	-0.67	0.67
32	PanelRightTab	5	10	0.33	0.00	-0.67	0.67
33	ToolbarTop	3	1	0.75	0.00	-0.25	0.25
34	Translator	7	1	0.88	0.00	-0.13	0.13
35	TranslatorCluster	2	1	0.67	0.00	-0.33	0.33
36	TranslatorNode	1	2	0.33	0.00	-0.67	0.67

SAP Analysis



Three Classes are in pain zone

a. ButtonCustom
b. Graph
c. PanelLog

What can be done?

1. ***Button Custom:*** *is a class extending the JPanel used wherever we need a custom button. The structure of the button custom doesn't need to be changed if any new functionality is introduced. So, there is a warning for button custom but it won't be a problem.*
2. ***Graph:*** *contains a method that checks the loop for the compiler. So the functionality of the graph may also not change very much.*
3. ***PanelLog:*** *creates the log panel added on the bottom part of the application. The only use of panel log is to append the messages to the log.*

SDP Analysis (Connections that are red flags)

The following are the red flag connections based on the instability principle of SDP

S.No	Left Class	Instability		Right Class	Instability
1	MenuBar	0.80	→	Compiler	0.86
2	Connector	0.25	→	Connection	0.60
3	PanelRightTab	0.33	→	Connection	0.60
4	Database	0.25	→	Connector	0.25
5	Op	0.10	→	Connector	0.25
6	Database	0.25	→	ConnectorBar	0.50
7	FactoryConnector	0.36	→	ConnectorBar	0.50
8	FactoryConnector	0.36	→	ConnectorDot	0.67
9	ListenersPanelRightTab	0.71	→	ContextMenuOp	0.89
10	Connector	0.25	→	Database	0.25
11	Op	0.10	→	Database	0.25
12	PanelLeft	0.80	→	FactoryOp	0.89
13	ToolbarTop	0.75	→	FactoryOp	0.89
14	MenuBar	0.80	→	FileManager	0.83
15	ListenersInputPopup	0.67	→	InputPopup	0.67
16	InputPopup	0.67	→	ListenersInputPopup	0.67
17	ListenersPanelLeft	0.67	→	ListenersInputPopup	0.67
18	ListenersInputPopup	0.67	→	ListenersPanelRightTab	0.71
19	ListenersPanelLeft	0.67	→	ListenersPanelRightTab	0.71
20	PanelRightTab	0.33	→	ListenersPanelRightTab	0.71
21	MainFrame	0.50	→	MenuBar	0.80
22	MainFrame	0.50	→	PanelLeft	0.80

23	Database	0.25	→	PanelRightTab	0.33
24	PanelRight	0.33	→	PanelRightTab	0.33
25	MainFrame	0.50	→	ToolbarTop	0.75
26	MenuBar	0.80	→	Translator	0.88
27	TranslatorNode	0.33	→	TranslatorCluster	0.67

NOTE: The classes in the list given above represents this given relation:

LeftClass → *RightClass*

What can be done?

According to the SDP principle, the instability of the destination class in a connection should be lower than the instability of the source class. There are many classes in our project 5 where the instability of the classes on the right is more than the class on the left. So depending on the class, we will try to make changes so that the instability of the right class is less than the one on the left.

The following are the red flag connections based on the abstraction principle of SDP

S.No	Left Class	Abstraction		Right class	Abstraction
1	Connector	1	→	Connection	0
2	Connector	1	→	Database	0
3	FactoryConnector	1	→	ConnectorBar	0
4	FactoryConnector	1	→	ConnectorDot	0
5	Op	1	→	Database	0
6	Op	1	→	PanelLog	0

What can be done?

According to the SDP principle, the abstraction of the destination class in a connection should be higher than the abstraction of the source class. There are a few connections in our project 5 where the abstraction of the classes on the right is less than the class on the left. So depending on the class, we will try to make changes so that the abstraction of the left class is less than the one on the right.