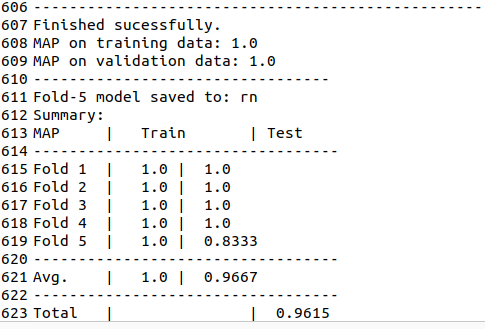
新增多個APR會使用的特徵，作為訓練資料。

**這是單純使用Top1、3、5、10以及是否生成patch這5個feature的結果。**

java -jar RankLib-2.18.jar -train Chart\_new\_feature/SBFL\_chart\_no\_sus.txt -ranker 1 -kcv 5 -kcvmd Chart\_result/Chart\_no\_sus/ -kcvmn rn -metric2t MAP -metric2T MAP -tvs 0.8 >> Chart\_result/Chart\_no\_sus/chart\_RN\_train.txt



F1應用在closure上面看看。

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_no\_sus/f1.rn -rank old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_no\_sus.txt -indri old\_new\_feature/Closure\_result/2\_Chart\_no\_sus\_f1.rn\_in\_closure\_result.txt

觀察closure-14

會先整理都是label為3的進行排名，其中的懷疑值是遞減的。

再來找lablel為2的，以此類推。

F3應用在closure上面看看。

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_no\_sus/f3.rn -rank old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_no\_sus.txt -indri old\_new\_feature/Closure\_result/3\_Chart\_no\_sus\_f3.rn\_in\_closure\_result.txt

觀察closure-14

會先整理都是label為3的進行排名，其中的懷疑值是遞減的。

再來找lablel為2的，以此類推。

應用在Chart上，觀察12、14

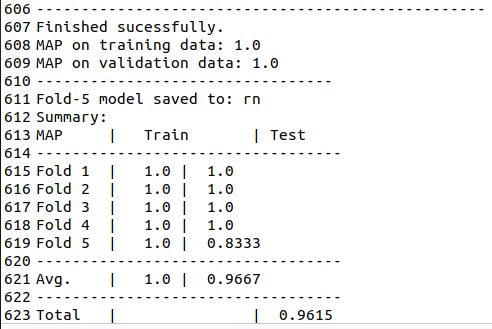
java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_no\_sus/f3.rn -rank old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_no\_sus.txt -indri old\_new\_feature/Chart\_result/Chart\_no\_sus\_f3.rn\_in\_chart\_result.txt

結果是同SBFL的情況下去排3、2、1、0

排完之後再排次之的SBFL情況。

**這是只有使用top資訊以及生成patch兩個patch的結果。**

java -jar RankLib-2.18.jar -train Chart\_new\_feature/SBFL\_chart\_one\_top.txt -ranker 1 -kcv 5 -kcvmd Chart\_result/Chart\_one\_top/ -kcvmn rn -metric2t MAP -metric2T MAP -tvs 0.8 >> Chart\_result/Chart\_one\_top/chart\_RN\_train.txt



F1應用在closure上面看看。

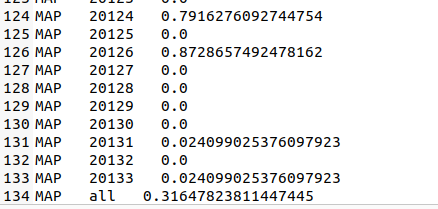
java -jar RankLib-2.18.jar -load Chart\_result/Chart\_one\_top/f1.rn -rank Closure\_new\_feature/SBFL\_closure\_one\_top.txt -indri Closure\_result/Chart\_one\_top\_f1.rn\_in\_closure\_result.txt

觀察closure-14

結果與預期的相符合。

驗證資料

java -jar RankLib-2.18.jar -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/closure\_one\_top.map.txt



驗證結果

F1

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f1.rn -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/chart\_F1\_one\_top\_in\_closure.map.txt

F2

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f2.rn -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/chart\_F2\_one\_top\_in\_closure.map.txt

F3

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f3.rn -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/chart\_F3\_one\_top\_in\_closure.map.txt

F4

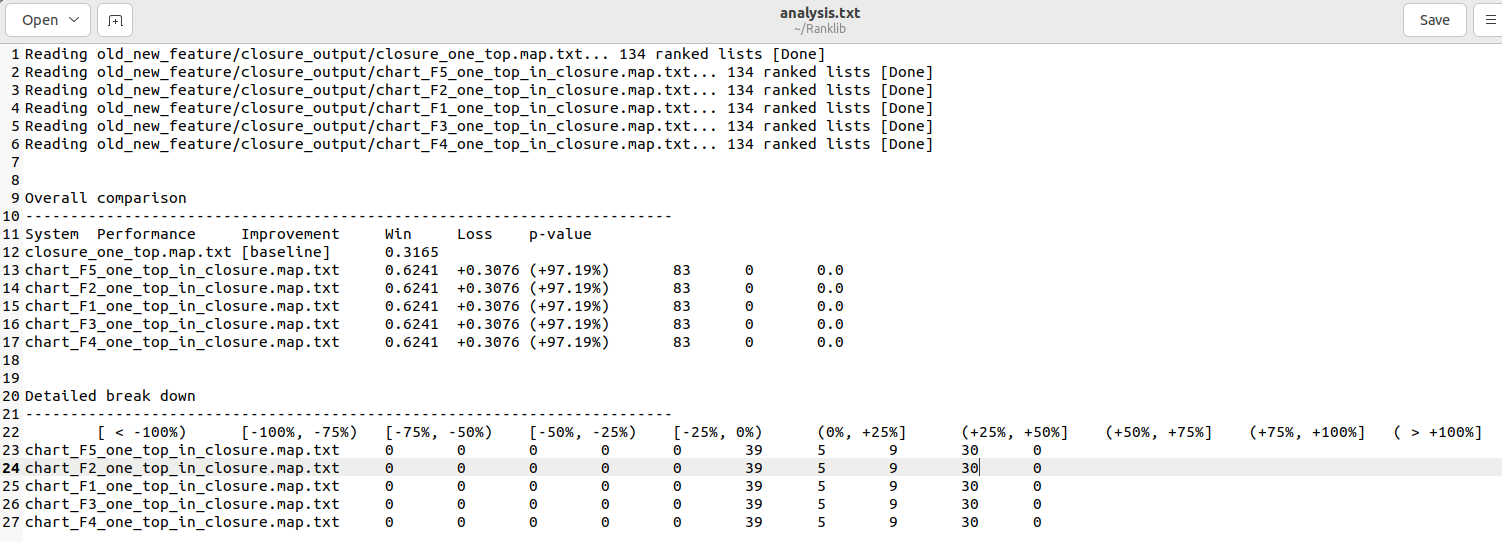
java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f4.rn -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/chart\_F4\_one\_top\_in\_closure.map.txt

F5

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f5.rn -test old\_new\_feature/Closure\_new\_feature/SBFL\_closure\_one\_top.txt -metric2T MAP -idv old\_new\_feature/closure\_output/chart\_F5\_one\_top\_in\_closure.map.txt

比較

java -cp RankLib-2.18.jar ciir.umass.edu.eval.Analyzer -all old\_new\_feature/closure\_output/ -base closure\_one\_top.map.txt > analysis.txt



比起原始資料，performance從0.3提升到0.6，提升率是97%，有83個表現更好，0個表現更差。

下面的數字分別代表各自提升的數字。

**應用在Chart上，觀察12、14**

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f3.rn -rank old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -indri old\_new\_feature/Chart\_result/Chart\_one\_top\_f3.rn\_in\_chart\_result.txt

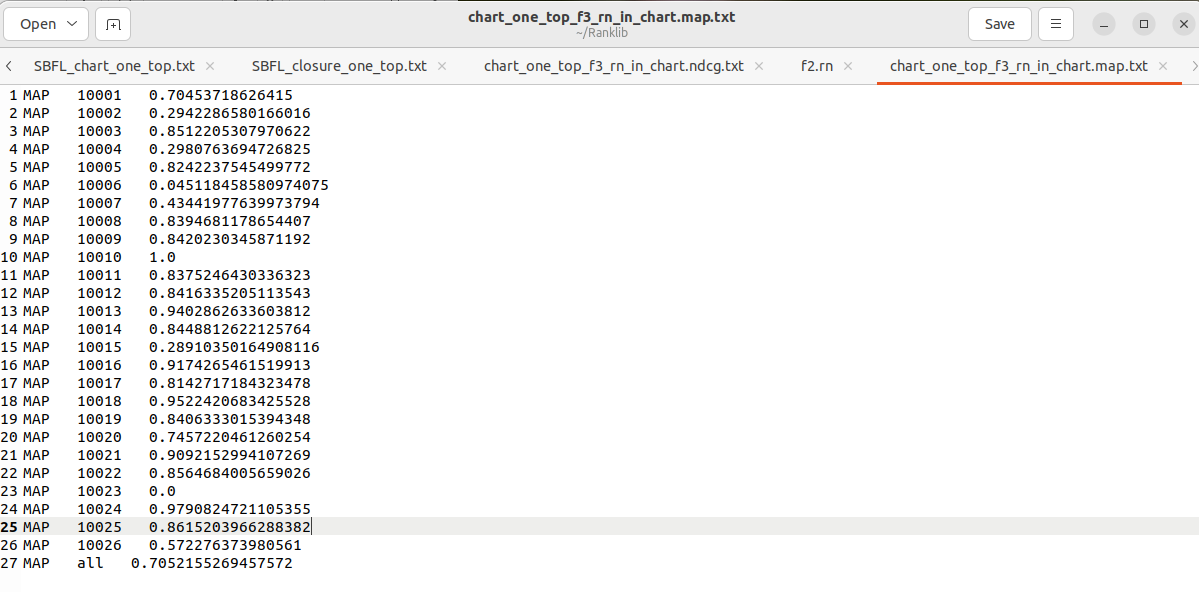
整理的excel是**”chart分頁排名結果\_F3\_one\_top.xlsx”**

同label依照SBFL排序，再下一個label。

驗證資料

java -jar RankLib-2.18.jar -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_one\_top.map.txt

MAP



驗證結果

F1

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f1.rn -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_F1\_one\_top\_in\_chart.map.txt

F2

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f2.rn -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_F2\_one\_top\_in\_chart.map.txt

F3

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f3.rn -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_F3\_one\_top\_in\_chart.map.txt

F4

java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f4.rn -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_F4\_one\_top\_in\_chart.map.txt

F5

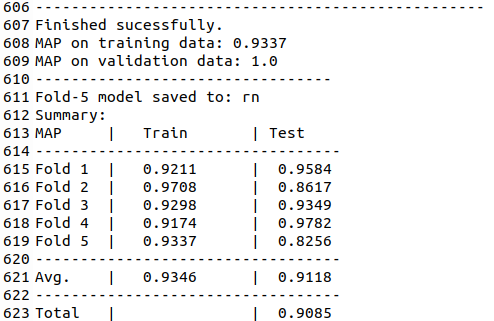
java -jar RankLib-2.18.jar -load old\_new\_feature/Chart\_result/Chart\_one\_top/f5.rn -test old\_new\_feature/Chart\_new\_feature/SBFL\_chart\_one\_top.txt -metric2T MAP -idv old\_new\_feature/chart\_output/chart\_F5\_one\_top\_in\_chart.map.txt

比較

java -cp RankLib-2.18.jar ciir.umass.edu.eval.Analyzer -all old\_new\_feature/chart\_output/ -base chart\_one\_top.map.txt > analysis.txt

**這是使用多個特徵的結果。**

java -jar RankLib-2.18.jar -train Chart\_new\_feature/SBFL\_chart.txt -ranker 1 -kcv 5 -kcvmd Chart\_result/Chart/ -kcvmn rn -metric2t MAP -metric2T MAP -tvs 0.8 >> Chart\_result/Chart/chart\_RN\_train.txt



應用在closure上面看看。

java -jar RankLib-2.18.jar -load Chart\_result/Chart/f1.rn -rank Closure\_new\_feature/SBFL\_closure.txt -indri Closure\_result/Chart\_new\_feature\_f1.rn\_in\_closure\_result.txt

比較像是針對APR技術有使用到的特徵做判斷，以此來統計那些特徵是對生成patch有幫助的。