

Assignment 5 - White Box Testing

Basic Block Method for Create Account

1) Code Sections (in Backend.py)

```
elif i[0] == "NEW":
1 | if i[1] in master_list:
2 |     print("Error! New account must have an unused account number!")
  |     return False
  |
  | if len(i) > 5: # if user name have space, then reevaluate name (include space)
3 |     name = ""
  |     for letter in i[4:]:
4 |         name += letter + " "
  |     master_list[i[1]] = ["0", name[0:-2]]
  | else:
  | 4 | master_list[i[1]] = ["0", i[-1][0:-1]]
```

2.1) Analysis of Test Cases

To test 'create account', we take a look at the part in the method which relates to creating account. We can see that there are multiple blocks from outer layer to inner layer, which are separated by 'if' or 'for'. We divide the blocks, so that a basic block contains all instructions which have the property that if one of them is executed then all of the others in the same basic block are. The completion criteria is each block is executed. Then we write the test report to see the final result.

2.2) Design of the Test Cases:

For all cases, the input files are *TransactionSummaryFile.txt* and *MasterAccountsFile.txt*.

Notes for the table:

-i in trans_list: the element in *trans_list*, which is the input reading from

TransactionSummaryFile.txt

e.g. ['WDR', '1234567', '100000', '0000000', 'theo']

-i[0]: the transaction code, e.g. "NEW"

-i[1]: the account number, e.g. "1234567"

Block	i[0] input	i[1] input	Test	i[0]	i[1]	expected terminate output
1	"NEW"	"1234567"	T1	"NEW"	"1234567"	"Error! New account must have an unused account number!"
2	"NEW"	"1234567"				
3	"NEW"	"1122334"	T2	"NEW"	"1122334"	"New Master Accounts File created successfully!" "New Valid Accounts File created successfully!"
4	"NEW"	"1122334"				
5	"NEW"	"1122334"				

3) Creation of Test Inputs for Test Cases

Test	Purpose	input based on code		input from file		expected output		
		i[0] input	i[1] input	input from "TransactionSummaryFile.txt"	input from "MasterAccountsFile.txt"	expected <i>MasterAccountsFile.txt</i>	expected <i>ValidAccountsList.txt</i>	expected Terminate output
T1	error when the new account number has been used	"NEW"	"1234567"	'NEW 1234567 000 0000000 Theo\n', 'EOS 0000000 000 0000000 ***'	"1234567 0 Theo\n"	"1234567 0 Theo\n"	"1122334\n" "0000000"	"Error! New account must have an unused account number!"
T2	do transactions other than "create account"	"NEW"	"1122334"	'WDR 1234567 200000 0000000 Theo\n', 'EOS 0000000 000 0000000 ***'	"1234567 400000 Theo\n"	"1234567 200000 Theo\n"	"1122334\n" "0000000"	"New Master Accounts File created successfully!" "New Valid Accounts File created successfully!"

4) Test Report - Resulting of the testing

Basic block testing method for testing withdraw

Note: if terminal outputs "New Master Accounts File created successfully!" and "New Valid Accounts File created successfully!", then it means the files are generated successfully

Test	Purpose	input		output		
		input read from TransactionSummaryFile.txt	input read from MasterAccountsFile.txt	updated MasterAccountsFile.txt	updated ValidAccountsList.txt	Terminate output
T1	error when the new account number has been used	'NEW 1234567 000 0000000 Theo\n', 'EOS 0000000 000 0000000 ***'	"1234567 0 Theo\n"	"1234567 0 Theo\n"	"1122334\n" "0000000"	"Error! New account must have an unused account number!"
T2	do transactions other than "create account"	'WDR 1234567 200000 0000000 Theo\n', 'EOS 0000000 000 0000000 ***'	"1234567 400000 Theo\n"	"1234567 200000 Theo\n"	"1122334\n" "0000000"	"New Master Accounts File created successfully!" "New Valid Accounts File created successfully!"