1) Control Flow Test for LoginActivity()
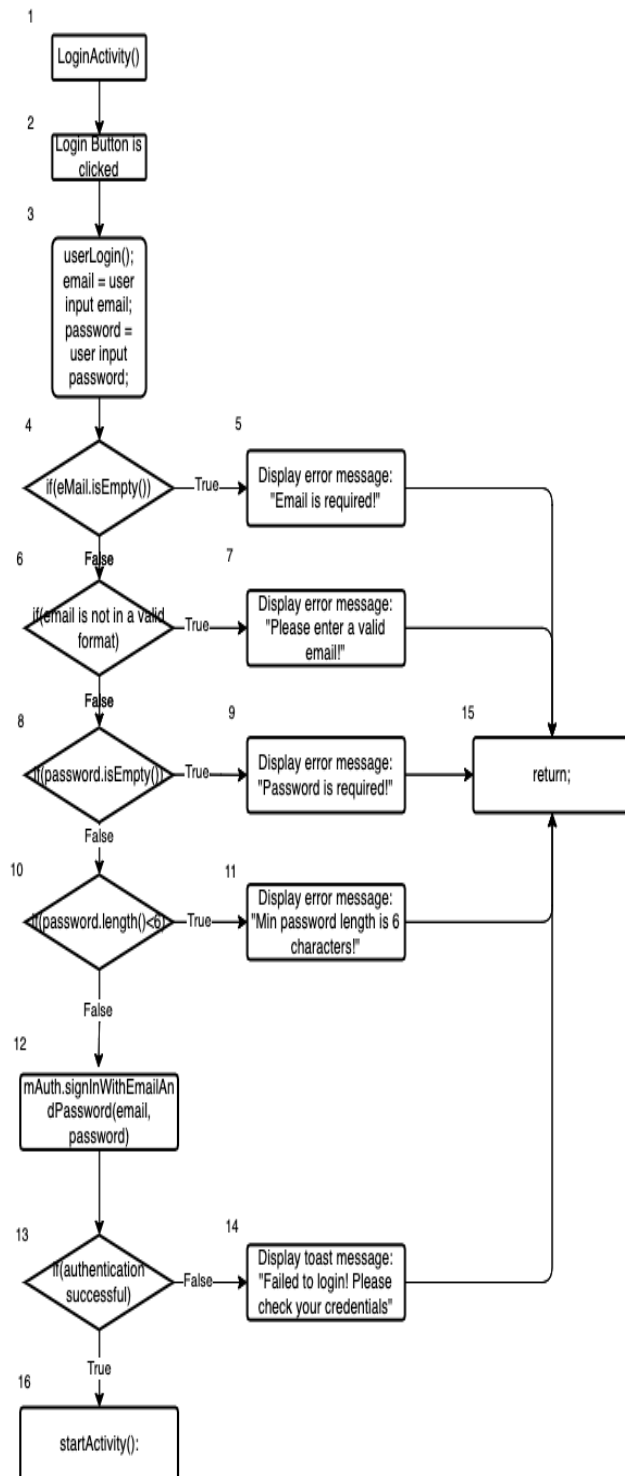

Cyclomatic Complexity

Taking Cyclomatic complexity:

|decision points| + 1 = 5 + 1 = **6**

Basic Paths

I.   Baseline path: 1, 2, 3, 4, 6, 8, 10, 12, 13, 16
II. Basic path 2: 1, 2, 3, 4, 5, 15
III. Basic path 3: 1, 2, 3, 4, 6, 7, 15
IV. Basic path 4: 1, 2, 3, 4, 6, 8, 9, 15
V.   Basic path 5: 1, 2, 3, 4, 6, 8, 10, 11, 15
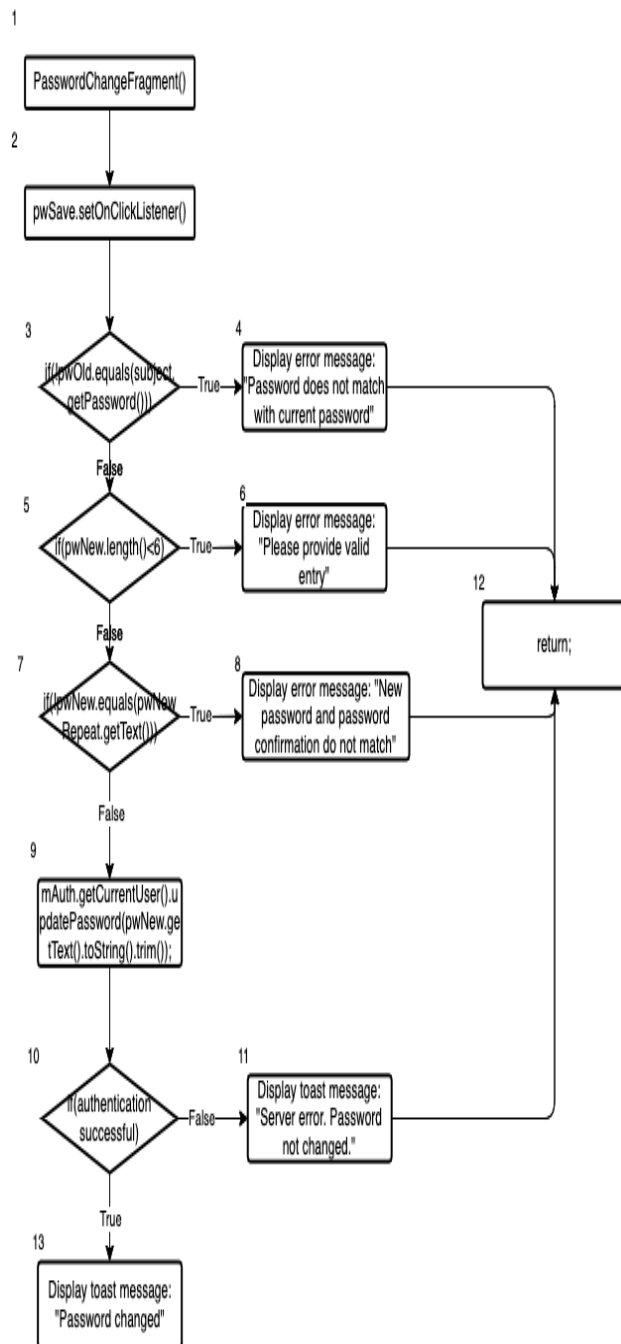VI. Basic path 6: 1, 2, 3, 4, 6, 8, 10, 12, 13, 14, 15

Test Cases

I.   email = "teresa_zhang@gmail.com" ;
     password: "12345678" ;

II. email = "" ; password = "1234678 " ;

III. email = "teresa_zhang" ; password = "1234678" ;

IV. email = "teresa_zhang@gmail.com" ;
     password = "" ;

V.   email = "teresa_zhang@gmail.com" ;
     password = "1234";

VI. email = "teresa_zhang@gmail.com" ;
     password = "87654321" (wrong password);

Real Execution Paths

I.   1, 2, 3, 4, 6, 8, 10, 12, 13, 16
II. 1, 2, 3, 4, 5, 15
III. 1, 2, 3, 4, 6, 7, 15
IV. 1, 2, 3, 4, 6, 8, 9, 15
V.   1, 2, 3, 4, 6, 8, 10, 11, 15
VI. 1, 2, 3, 4, 6, 8, 10, 12, 13, 14, 15

2) Control Flow Test for PasswordChangeFragment()

Cyclomatic Complexity

Taking Cyclomatic complexity:

|decision points| + 1 = 4 + 1 = **5**

Basic Paths

I.   Baseline path: 1, 2, 3, 5, 7, 9, 10, 13
II. Basic path 2: 1, 2, 3, 4, 12
III. Basic path 3: 1, 2, 3, 5, 6, 12
IV. Basic path 4: 1, 2, 3, 5, 7, 8, 12
V.   Basic path 5: 1, 2, 3, 5, 7, 9, 10, 11, 12
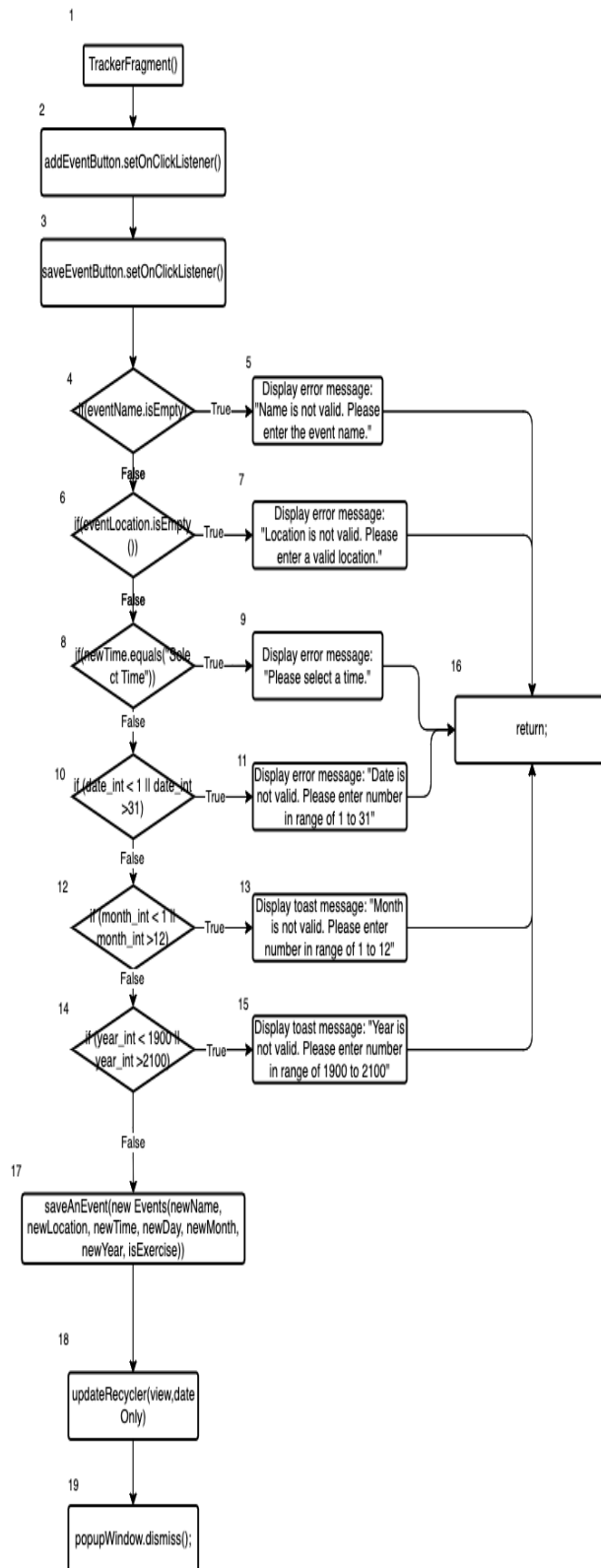
Test Cases

I.   password: "12345678" ; new password: "246810"; confirm password: "246810"

II. password: "87654321" (wrong password); new password: "246810"; confirm password: "246810"

III. password: "12345678" ; new password: "2468"; confirm password: "2468"

IV. password: "12345678" ; new password: "246810"; confirm password: "246811"

V.   password: "12345678" ; new password: "246810"; confirm password: "246810"; No Internet;

Real Execution Paths

I.   1, 2, 3, 5, 7, 9, 10, 13
II. 1, 2, 3, 4, 12
III. 1, 2, 3, 5, 6, 12
IV. 1, 2, 3, 5, 7, 8, 12
V.   1, 2, 3, 5, 7, 9, 10, 11, 12

3) Control Flow Test for TrackerFragment()

Flowchart nodes

1. TrackerFragment()
2. addEventButton.setOnClickListener()
3. saveEventButton.setOnClickListener()
4. if(eventName.isEmpty)
5. Display error message: "Name is not valid. Please enter the event name."
6. if(eventLocation.isEmpty())
7. Display error message: "Location is not valid. Please enter a valid location."
8. if(newTime.equals("Select Time"))
9. Display error message: "Please select a time."
10. if (date_int < 1 ll date_int >31)
11. Display error message: "Date is not valid. Please enter number in range of 1 to 31"
12. if(month_int < 1 ll month_int >12)
13. Display toast message: "Month is not valid. Please enter number in range of 1 to 12"
14. if(year_int < 1900 ll year_int >2100)
15. Display toast message: "Year is not valid. Please enter number in range of 1900 to 2100"
16. return;
17. saveAnEvent(new Events(newName, newLocation, newTime, newDay, newMonth, newYear, isExercise))
18. updateRecycler(view,dateOnly)
19. popupWindow.dismiss();

Cyclomatic Complexity

Taking Cyclomatic complexity:

|decision points| + 1 = 6 + 1 = 7

Basic Paths

I. Baseline path: 1, 2, 3, 4, 6, 8, 10, 12, 14, 17, 18, 19
II. Basic path 2: 1, 2, 3, 4, 5, 16
III. Basic path 3: 1, 2, 3, 4, 6, 7, 16
IV. Basic path 4: 1, 2, 3, 4, 6, 8, 9, 16
V. Basic path 5: 1, 2, 3, 4, 6, 8, 10, 11, 16
VI. Basic path 6: 1, 2, 3, 4, 6, 8, 10, 12, 13, 16
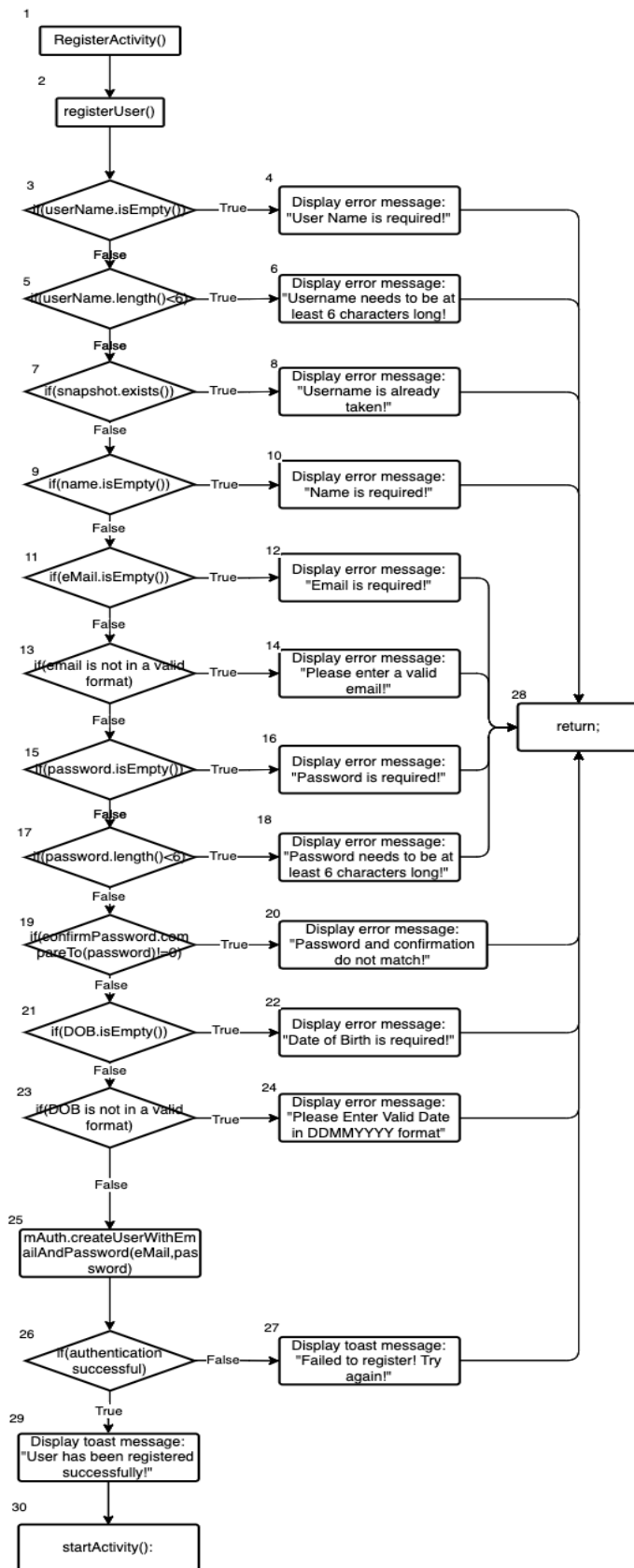VII. Basic path 7: 1, 2, 3, 4, 6, 8, 10, 12, 14, 15, 16

Test Cases

I. event = "Lunch with Teresa"; location = "NTU Canteen 14"; time = "12:30"; date = "16042022";

II. event = ""; location = "NTU Canteen 14"; time = "12:30"; date = "16042022";

III. event = "Lunch with Teresa"; location = ""; time = "12:30"; date = "16042022";

IV. event = "Lunch with Teresa"; location = "NTU Canteen 14"; time = "Select Time"; date = "16042022";

V. event = "Lunch with Teresa"; location = "NTU Canteen 14"; time = "12:30"; date = "32042022";

VI. event = "Lunch with Teresa"; location = "NTU Canteen 14"; time = "12:30"; date = "16132022";

VII. event = "Lunch with Teresa"; location = "NTU Canteen 14"; time = "12:30"; date = "16042111";

Real Execution Paths

I. 1, 2, 3, 4, 6, 8, 10, 12, 14, 17, 18, 19
II. 1, 2, 3, 4, 5, 16
III. 1, 2, 3, 4, 6, 7, 16
IV. 1, 2, 3, 4, 6, 8, 9, 16
V. 1, 2, 3, 4, 6, 8, 10, 11, 16
VI. 1, 2, 3, 4, 6, 8, 10, 12, 13, 16
VII. 1, 2, 3, 4, 6, 8, 10, 12, 14, 15, 16

4) Control Flow Test for RegisterActivity()

Cyclomatic Complexity

Taking Cyclomatic complexity:

$|\text{decision points}| + 1 = 12 + 1 = \mathbf{13}$

Basic Paths

I. Baseline path: 1, 2, 3, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 26, 29, 30
II. Basic path 2: 1, 2, 3, 4, 28
III. Basic path 3: 1, 2, 3, 5, 6, 28
IV. Basic path 4: 1, 2, 3, 5, 7, 8, 28
V. Basic path 5: 1, 2, 3, 5, 7, 9, 10, 28
VI. Basic path 6: 1, 2, 3, 5, 7, 9, 11, 12, 28
VII. Basic path 7: 1, 2, 3, 5, 7, 9, 11, 13, 14, 28
VIII. Basic path 8: 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 28
IX. Basic path 9: 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 18, 28
X. Basic path 10: 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 20, 28
XI. Basic path 11: 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 22, 28
XII. Basic path 12: 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 24, 28
XIII. Basic path 13: 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 26, 27, 28

Real Execution Paths

I. 1, 2, 3, 4, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 26, 29, 30
II. 1, 2, 3, 4, 28
III. 1, 2, 3, 5, 6, 28
IV. 1, 2, 3, 5, 7, 8, 28
V. 1, 2, 3, 5, 7, 9, 10, 28
VI. 1, 2, 3, 5, 7, 9, 11, 12, 28
VII. 1, 2, 3, 5, 7, 9, 11, 13, 14, 28
VIII. 1, 2, 3, 5, 7, 9, 11, 13, 15, 16, 28
IX. 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 18, 28
X. 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 20, 28
XI. 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 22, 28
XII. 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 24, 28
XIII. 1, 2, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 26, 27, 28

Test Cases

I.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

II.   username = ""; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

III.   username = "123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

IV.   username = "Healthy" (taken); name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

V.   username = "Healthy123"; name = ""; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

VI.   username = "Healthy123"; name = "Teresa"; email = ""; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

VII.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang"; password = "12345678"; confirm password = "12345678"; DOB = "19122001";

VIII.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = ""; confirm password = "12345678"; DOB = "19122001";

IX.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "1234"; confirm password = "1234"; DOB = "19122001";

X.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12349876"; DOB = "19122001";

XI.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "";

XII.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19/12/2001";

XIII.   username = "Healthy123"; name = "Teresa"; email = "teresa_zhang@gmail.com"; password = "12345678"; confirm password = "12345678"; DOB = "19122001"; No Internet;