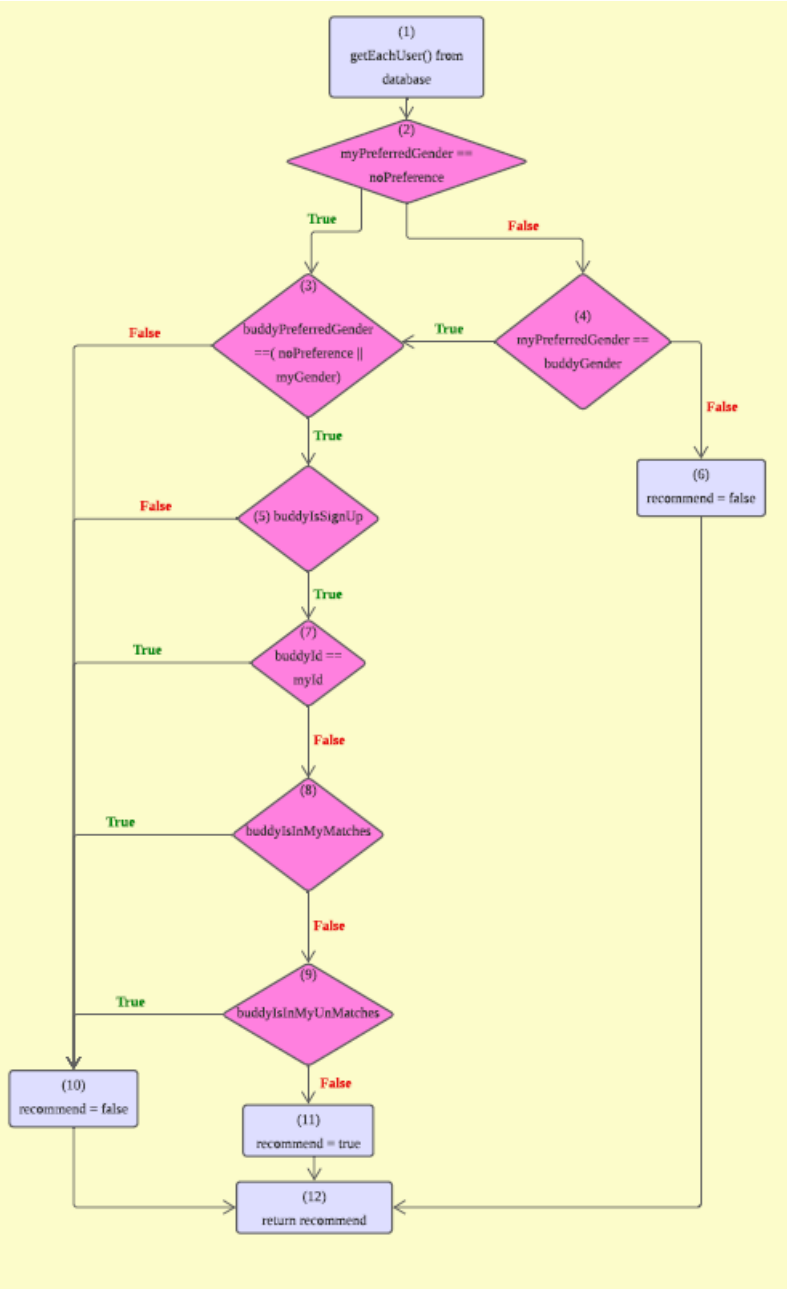
White Box Testing

1. Control Flow Test - Basis Path Testing for findBuddyQuery()

1. Control Flow Graph



2.1 Cyclomatic Complexity

CC = |edges| - |nodes| + 2

= 18 -12 + 2 = **8**

CC = |decision point| + 1

= 7 + 1 = **8**

2.2 Basis Paths

A. 1, 2, 3, 5, 7, 8, 9, 11, 12

B. 1, 2, 4, 3, 5, 7, 8, 9, 11, 12

C. 1, 2, 3, 5, 7, 8, 9, 10, 12

D. 1, 2, 3, 5, 7, 8, 10, 12

E. 1, 2, 3, 5, 7, 10, 12

F. 1, 2, 3, 5, 10 ,12

G. 1, 2, 3, 10, 12

H. 1, 2, 4, 6, 12

3. Test Cases (Highlights are the difference between previous and current test case)

A. User has no preferred gender, the buddy has no gender preference or prefers the user's gender. The buddy has signed up for gym buddy. The buddy's ID is not the same as the user's ID. The buddy is not in the user's matches or unmatches list.

B. User has a preferred gender that matches the buddy's gender. The buddy has no gender preference or prefers the user's gender. The buddy has signed up for gym buddy. The buddy's ID is not the same as the user's ID. The buddy is not in the user's matches list. The buddy is not in the user's unmatches list.

C. User has no preferred gender, the buddy has no gender preference or prefers the user's gender. The buddy has signed up for gym buddy. The buddy's ID is not the same as the user's ID. The buddy is not in the user's matches list. The buddy is in the user's unmatches list.

D. User has no preferred gender, the buddy has no gender preference or prefers the user's gender. The buddy has signed up for gym buddy. The buddy's ID is not the same as the user's ID. The buddy is in the user's match list.

E. User has no preferred gender, the buddy has no gender preference or prefers the user's gender. The buddy has signed up for gym buddy. The buddy's ID is the same as the user's ID.

F. User has no preferred gender, the buddy has no gender preference or prefers the user's gender. The buddy has not signed up for gym buddy.

G. User has no preferred gender, the buddy has a gender preference that is not the same as the user's gender.

H. User has a preferred gender, the user's preferred gender is not the same as the buddy's gender.

3. Real Execution Paths

A. 1, 2, 3, 5, 7, 8, 9, 11, 12

B. 1, 2, 4, 3, 5, 7, 8, 9, 11, 12

C. 1, 2, 3, 5, 7, 8, 9, 10, 12

D. 1, 2, 3, 5, 7, 8, 10, 12

E. 1, 2, 3, 5, 7, 10, 12

F. 1, 2, 3, 5, 10 ,12

G. 1, 2, 3, 10, 12

H. 1, 2, 4, 6, 12

4. Expected Return type at end of Real Execution Path

A. recommend == true

B. recommend == true

C. recommend == false

D. recommend == false

E. recommend == false

F. recommend == false

G. recommend == false

H. recommend == false

5. Manual Testing Results

Test Input	Expected Output	Actual Output
Test Case A	recommend == true	recommend == true
Test Case B	recommend == true	recommend == true
Test Case C	recommend == false	recommend == false
Test Case D	recommend == false	recommend == false
Test Case E	recommend == false	recommend == false
Test Case F	recommend == false	recommend == false
Test Case G	recommend == false	recommend == false
Test Case H	recommend == false	recommend == false

*Note: This function filters whether to recommend a buddy, for our manual testing, we observe the actual output logged onto the console. However, for actual user display, we swiped all matches until there are no more matches to check if the user was recommended a not.

2. Control Flow Test - Basis Path Testing for getVideos()

2.1 Cyclomatic Complexity

CC = |edges| - |nodes| + 2

= 17 -14+ 2 = **5**

CC = |decision point| + 1

= 4 + 1 = **5**

2.2 Basis Paths

A. 1, 2, 3, 5, 9, 11, 12, 13, 14

B. 1, 2, 3, 6, 9, 11, 12, 13, 14

C. 1, 2, 3, 6, 9, 11, 12, 14

D. 1, 2, 4, 7, 10, 14

E. 1, 2, 4, 8, 10, 14

3. Test Cases (Highlights are the difference between previous and current test case)

A. User has no completed workouts, is a female or male, has declared an area of injury.

B. User has no completed workouts, has gender that is not female and not male, has declared an area of injury.

C. User has no completed workouts, has gender that is not female and not male, has not declared an area of injury.

D. User has completed workouts, is female or male.

E. User has completed workouts, has gender that is not female and not male.

3. Real Execution Paths

A. 1, 2, 3, 5, 9, 11, 12, 13, 14

B. 1, 2, 3, 6, 9, 11, 12, 13, 14

C. 1, 2, 3, 6, 9, 11, 12, 14

D. 1, 2, 4, 7, 10, 14

E. 1, 2, 4, 8, 10, 14

4. Expected Return at end of Real Execution Path

A. [‘beginner + gender’, ‘fitnessGoal + gender’, ‘areaOfInjury’]

B. [‘beginner’, ‘fitnessGoal’, ‘areaOfInjury’]

C. [‘beginner’, ‘fitnessGoal’]

D. [‘gender + exerciseName’]

E. [‘exerciseName’]

5. Manual Testing Results

Test Input	Expected Output	Actual Output
Test Case A: No completed workouts, Gender = Female, Area of Injury = Arm Injury, fitnessGoal = Gain Muscle	[`beginner + female’, ‘Gain Muscle + female’, ‘Arm Injury’]	[“20 MIN FULL BODY WORKOUT - Beginner Version // No Equipment I Pamela Reif”, “Muscle Building Tips for Women – BULKING 101!”, “Injury Spotlight: What is Tennis Elbow? Stretches & Exercises”]
Test Case B: No completed workouts, Gender = Others, Area of injury = Leg Injury, fitnessGoal = Lose Weight	[‘beginner’, ‘Lose Weight’, ‘Leg Injury’]	[“30 minute fat burning home workout for beginners. Achievable, low impact results”, “Do This Everyday To Lose Weight | 2 Weeks Shred Challenge”, “Recover Faster! Must-Do Exercises with Injured Foot or Ankle”]
Test Case C: No completed workouts, Gender = Others, Area of injury = No injury, fitnessGoal = Build Strength	[‘beginner’, ‘Build Strength’]	[“20 min FULL BODY Workout for TOTAL BEGINNERS (No Equipment)”, “8 Exercises for Incredible Strength! (NO EXTRA TIME)”]
Test Case D: Completed Workouts, Gender = Male Completed workout involving: Deadlift Exercise	[‘Male + deadlift’]	[“How To Perfect Your Deadlift | Form Check | Men's Health”]
Test Case E: Completed Workouts, Gender = Other, Completed workout involving: Shoulder Press	[‘shoulder press’]	[“How To: Dumbbell Shoulder Press”]

- Note 1: For this control flow test, the array will return an array of YouTube URL Links which will display as videos in our application. Hence, the actual output here we display will be the YouTube Video Title.
- Note 2: For those with completed workouts, there will be 5 YouTube videos shown of 5 different exercises, however, since this is a control flow testing, we will only show the result of 1 exercise of the 5.
- Note 3: The actual output can differ each time during testing due to randomness of the YouTube Search Engine, however the actual output should still correspond to the search terms extracted by the control flow logic.