

# Design

Inputs	Outputs
<ul style="list-style-type: none"><li>• Number of Gym members, exercises, and weeks.</li><li>• Necessary data into the for each gym member.</li></ul>	<ul style="list-style-type: none"><li>• High - Burning Calorie Exercises that exceed 2.5 calories per rep</li><li>• Total number of calories burnt per exercise by each gym member</li><li>• Name of the most ineffective exercise performed by each gym member</li><li>• Weight loss alert</li></ul>

## Variables

- nMembers - Integer
- nExercises - Integer
- nWeeks - Integer
- /Members() - Member

# UML

Member
- _MemName: String
- _Weight : Double
- _Age : Integer
- _Exercises[]: Exercise
- _IneExercise: Integer
- _WeightLossAlert : String
<< Constructor >>
+ Member (NumberExercises: Integer)
<< Property >>
+ MemName(): String
+ Weight(): Double
+ Age(): Integer
+ Exercises(): Exercise
+ IneExercise(): Integer
+ WeightLossAlert(): String
<< Methods >>
+ CalcWeightLossRatio(): Double

Exercise
- _ExerName: String
- _CalBurnt : Double
- _Reps []: Integer
- _TotCalBurnt : Double
<< Constructor >>
+ Exercise (NumberWeeks: Integer)
<< Property >>
+ ExerName(): String
+ CalBurnt(): Double
+ Reps(): Integer
+ TotCalBurnt(): Double
<< Methods >>
+ CalcTotCals(): Void

Events	Actions
• btnSetup is clicked	<ul style="list-style-type: none"> <li>Take in inputs for nMembers, nExercises and nWeeks.</li> <li>Set up dynamic arrays, the grid and label the grid.</li> </ul>
• btnCaptVal is clicked	<ul style="list-style-type: none"> <li>Take in input of data for each gym member including data for each Exercise.</li> </ul>
• btnCalcHighCalExer is clicked	<ul style="list-style-type: none"> <li>Count the number of High-Burning Calorie Exercise and display count in textbox.</li> </ul>
• btnCalcTotCalBurnt is clicked	<ul style="list-style-type: none"> <li>Calculate, store and Display the total number of calories burnt for each exercise tracked by each member.</li> </ul>
• btnIndIneExer is clicked	<ul style="list-style-type: none"> <li>Calculate and store the index of the Most ineffective exercise</li> <li>Display name of the most ineffective exercise for each member.</li> </ul>
• btnWeightLossAlert is clicked	<ul style="list-style-type: none"> <li>Calculate, store and Display the weight loss alert for each gym member.</li> </ul>

# Interface

frmGym

btnSetup

Setup

btnCaptVal

Capture  
Values

btnHighCalExer

Total Calories  
Burnt

btnIndIneExer

Most Ineffective  
Exercise

btnIndIneExer

Weight Loss  
Alert

btnCalcHighCalExer

High Calories  
Exercises

grdGym

	Exer 1	Exer 2	Most Ineffective Exercise	Weight Loss Alert
M 1				
M 2				

btnCalcTotalCalBurnt

txtHighCalExer

# Algorithm

## btnSetup

1. Take in inputs from user
2. nMembers  $\leftarrow$  Prompt user for the number of gym members
3. nExercises  $\leftarrow$  Prompt user for the number of exercises
4. nWeeks  $\leftarrow$  Prompt user for the number of weeks
5. Setup grid and dynamic arrays.

## btnCaptVal

1. Take in input of relevant data for each gym member and each exercise
2. Display relevant data in the grid

## btnCalcHighCalExer

1. Count number of high-burning calorie exercises
  1. For each member and each exercise if calories burnt > 2.5 then

Counter  $\leftarrow$  Counter + 1

2. Display txtHighCalExer. Text  $\leftarrow$  Counter

## btnCalcTotCalBurnt

1. Calculate total number of calories burnt per exercise by each gym member

1. Total  $\leftarrow$  sum of reps per exercise

2. TotCalBurnt  $\leftarrow$  Total  $\div$  7700  $\cdot$  weight

3. Display TotCalBurnt in the grid

## btnIndIneExer

1. Calculate the index of the most ineffective

exercise performed

1. Min  $\leftarrow$  Calories burnt by exercise 1.
2. If  $\text{Min} >$  Calories burnt by next exercise  
 $\text{Min} =$  that exercise
3. MinIndex = index of that exercise
4. Display name of that exercise in the grid.

bthWeightLossAlert

1. Calculate weight loss Alert
1. Ratio  $\leftarrow$  ~~Reps~~ TotalCalBurnt  $\div$  710C  $\div$  weight
2. Assess Ratio and Age to determine the Weight Loss Alert
3. Display Weight Loss in the grid for each gym member.

# Test Data

Number of Members: 2

Number of Exercises: 2

Number of Weeks: 2

~~Input~~  
Input

Name	M1		M2	
Weight	31.9		91.85	
Age	18		<del>58</del> 55	
Exercise Name	Pushup	Pullup	Situp	Jog
Burnt Calories	3.2	32	32	2.0
Number of Reps	10	10	20	20

Total Calories

~~Output~~

Total Calories	64	1280	1280	40
Inneffective Exercise	Pushup		Jog	
Weight Loss Alert	Try Harder		Stay Steady	
High Calories Exercises	3			