**SYSTEM DESIGN ANALYSIS**

*PROJECT : GYM PROGRAM GENARATOR*

***Group 1:***

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***1.Project Description:***

*Gym Program Generator let's you fill in your Information so you can check how strong you are according to global standards. After calculating your 1RM's you can generate a popular strength training program based on your numbers by clicking on the "Generate Program" button.*

***1.1 . Actor description:***

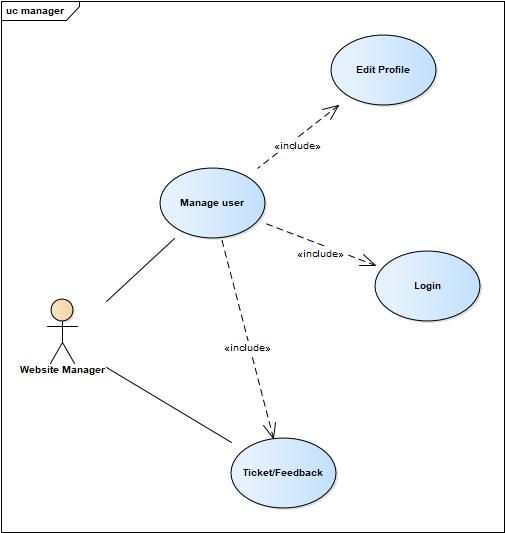
|  |  |  |
| --- | --- | --- |
| Num | Actor | Description |
| 1 | User | Weightlifter or anyone who lift weight. Program will track their weight, their change, have some statistics such as chart (weight, height), exercise history |
| 2 | Anonymous User | Input their weight, choose what exercise they want to train, system will not collect these users's data |
| 3 | Website manager | manage user, manage system, respond to user's feedback, basic system diagnosis |

***1.2 Use case description:***

|  |  |  |
| --- | --- | --- |
| Actor | Use case | Description |
| User | Login | User input their username/email and password into login form.  Website verify username/email and password with database. |
| Register | User registered account with their private information.  Website add user’s : Username, email, password, full name, gender to database |
| Edit Profile | User can change their Email, Password, Full Name, Gender.  Website add new information to database. |
| Training Logs/Tracker | User input Weight, Height, Age, Lifted Weight and Reps for each exercise (provided by website).  Website add user’s : Weight, Height, Age, Lifted Weight, 1RM (calculate base on lifted weight and reps) to database.  Website provide :   1. 1RM logs, Lifted weight for each exercise logs by Chart/Graph 2. Strength Level based on Bodyweight base on this paper ([Paper](http://www.catalystathletics.com/articles/downloads/CatalystAthleticsWeightliftingLevels2015.pdf)) |
| Training Program Generator | User request website to generate program based on their provided information.  Website request “lifted weight for each exercises” from database/user.  Website layout these program (calculated based on lifted weight and program template) on the website and pdf file :   1. Stronglift 5x5 2. Starting Strength 3x5 3. Madcow 5x5 4. Texas Method 5. Korte 3x3 6. 5/3/1 7. Sheiko 8. Cube 9. Smolov JR 10. Cowboy Method |
| Calculate 1RM | Website calculate 1RM ([wiki](https://en.wikipedia.org/wiki/One-repetition_maximum)) base on one of these formula :   1. Epley 2. Brzycki 3. Lancer 4. Lombardi 5. Mayhew 6. O’Conner 7. Wathan |
| Calculate Wilks Coefficient | [Wilks Coefficient Formula & Wiki](https://en.wikipedia.org/wiki/Wilks_Coefficient) |
| Calculate Sinclair Coefficient | [Sinclair Coeffiencent Formula & Wiki](https://en.wikipedia.org/wiki/Sinclair_Coefficients) |
| Ticket/Feedback | User send ticket to manager.  Ticket have 2 parts :   1. Title (short description) 2. Content (detailed description)   Website add user ticket to database.  Manager view ticket and respond if needed. |
| Anonymous User | Training Logs/Tracker | User input Weight, Height, Age, Lifted Weight and Reps for each exercise (provided by website).  Website add user’s : Weight, Height, Age, Lifted Weight, 1RM (calculate base on lifted weight and reps) to database.  Website provide :   1. 1RM logs, Lifted weight for each exercise logs by Chart/Graph 2. Strength Level based on Bodyweight base on this paper ([Paper](http://www.catalystathletics.com/articles/downloads/CatalystAthleticsWeightliftingLevels2015.pdf)) |
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| Calculate Wilks Coefficient | [Wilks Coefficient Formula & Wiki](https://en.wikipedia.org/wiki/Wilks_Coefficient) |
| Calculate Sinclair Coefficient | [Sinclair Coeffiencent Formula & Wiki](https://en.wikipedia.org/wiki/Sinclair_Coefficients) |
| Website Manager | Manage User | Manager can change user profile, delete user account |
| Ticket/Feeback | Reply user's request in request form and through email |

***1.3. Use case extend:***

|  |  |  |
| --- | --- | --- |
| Use Case | Type | Description |
| Login | extend | Register |
| Register |  |  |
| Edit Profile | include | Login |
| Training Logs/Tracker | include | Login |
| extend | Register |
| include | Calculate 1RM |
| include | Calculate Wilks Coefficient |
| include | Calculate Sinclair Coefficient |
| extend | Ticket/Feedback |
| Training Program Generator | include | Training Logs/Tracker |
| include | Calculate 1RM |
| extend | Ticket/Feedback |
| Calculate 1RM |  |  |
| Calculate Wilks Coefficient |  |  |
| Calculate Sinclair Coefficient |  |  |
| Ticket/Feedback | include | Login |
| extend | Register |
| Manage User | include | Edit Profile |
| include | Login |
| include | Ticket/Feedback |

***1.4 Visualization: ***

