

Goal Attainment Scaling

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Abstract— GAS is a web-based application that implements the idea of Goal Attainment Scaling used in therapeutic exercises. GAS is a therapeutic method that refers to the development of a written follow-up guide between the client and the counselor used for monitoring client progress. GAS web-app have hierarchical users like Admin, Supervisors and Goalsetters to effectively use this fundamental concepts of goal attainment scaling. This application will help users to get rid of the paperwork they usually do to follow scaling of goals.

Index Terms—GAS- Goal Attainment Scaling, Goalsetter: User who set goals for client and work on it. Supervisor: User who monitor progress of goalsetter under them. Admin: User who monitor supervisors.

I. INTRODUCTION

GAS is a method of scoring the extent to which patient's individual goals are achieved in the course of intervention. In effect, each patient has their own outcome measure but this is scored in a standardized way as to allow statistical analysis. Traditional standardized measures include a standard set of tasks (items) each rated on a standard level. In GAS, tasks are individually identified to suit the patient, and the levels are individually set around their current and expected levels of performance.

II. HOW TO SCALE GOALS?

An important feature of GAS is the a priori establishment of criteria for a successful outcome in that individual, which is agreed with the patient and family before intervention starts so that everyone has a realistic expectation of what is likely to be achieved, and agrees that this would be worth striving for. Each goal is rated on a 5-point scale, with the degree of attainment captured for each goal area:

If the patient achieves the expected level, this is scored at 0.
If they achieve a better than expected outcome this is scored at: +1 (somewhat better) +2 (much better).

If they achieve a worse than expected outcome this is scored at: -1 (somewhat worse) or -2 (much worse).

Goals may be weighted to take account of the relative importance of the goal to the individual, and/or the anticipated difficulty of achieving it.

III. HOW TO CALCULATE GAS SCORE?

$$\text{Overall GAS} = 50 + \frac{10 \sum(w_i x_i)}{[(1-\rho) \sum w_i^2 + \rho(\sum w_i)^2]^{1/2}}$$

Where:

w_i = the weight assigned to the i th goal (if equal weights, $w_i = 1$)

x_i = the numerical value achieved (between -2 and +2)

ρ = the expected correlation of the goal scales

For practical purposes, according to Kirusek and Sherman, ρ most commonly approximates to 0.3, so the equation simplifies to:

IV. WORKED EXAMPLE

Example goal: To reduce her shoulder pain.

At Baseline: She had severe shoulder pain rating 8/10 at rest, disturbing her sleep and waking her 2-3 times a night.

Goal statements can be:

- 2: Pain is 8/10.
- 1: Pain is 6/10.
- 0 : Pain is 2/10.
- +1: Pain is 1/10.
- +2: Pain is 0/10.

Expected Outcome: We expected to reduce her pain to around 2/10, and to reduce night time waking through pain to once a night.

After intervention goal setter will evaluate the progress and apply the GAS formula mentioned above, which will give baseline GAS, Outcome GAS and subtraction of both which is actual GAS score.

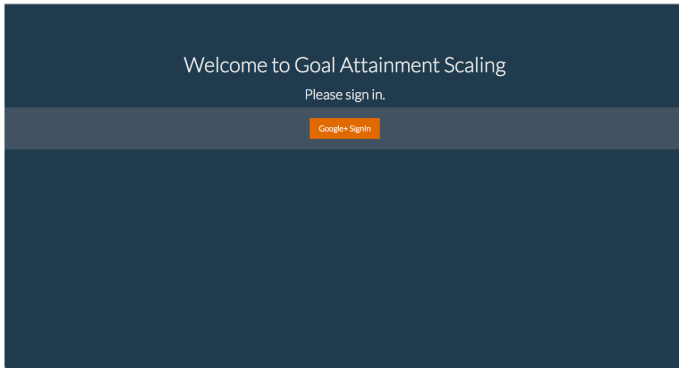
V. APPLICATION OVERVIEW

Sample Login:

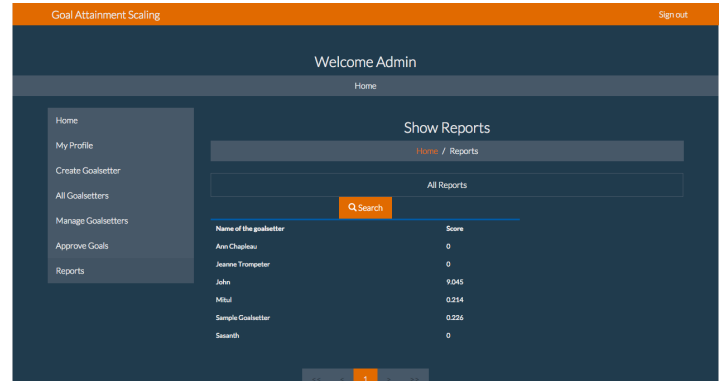
URL: <https://goalscale.appspot.com/#/>

Sample Supervisor Credentials: scalegoalapp@gmail.com
Password: 'goalscalewmu'.

Home Screen:



Report for all goalsetters:

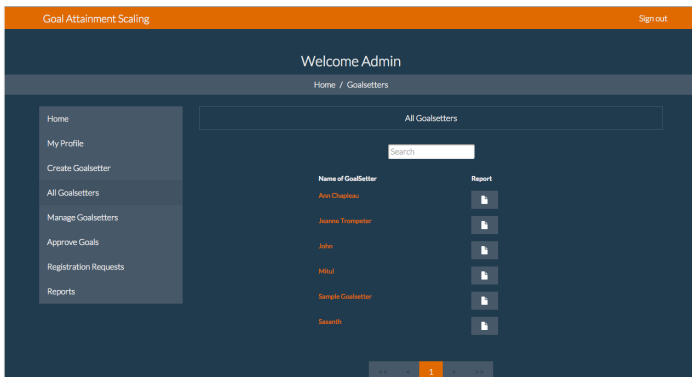
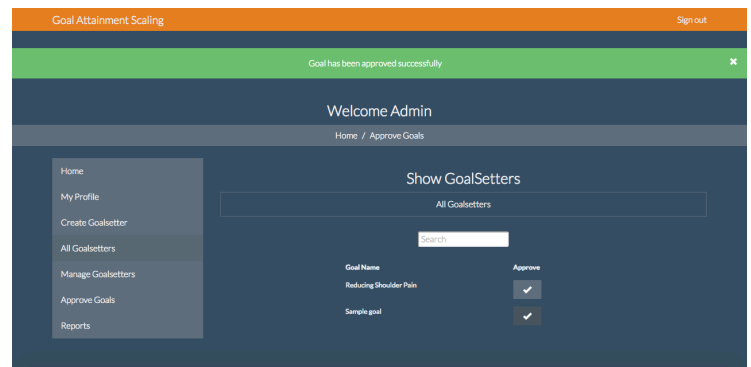


Admin : Roles

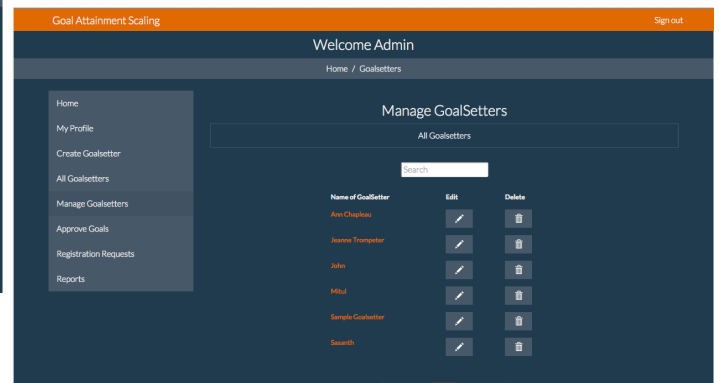
- Create and manage goalsetters.
- Access to all goalsetters data.
- Can create and modify clients under them.
- Can create and modify, discontinue unattainable goals.
- Can do Evaluations.
- Can get report hard copy for individual goalsetter, client and goal.

List of all goalsetters.

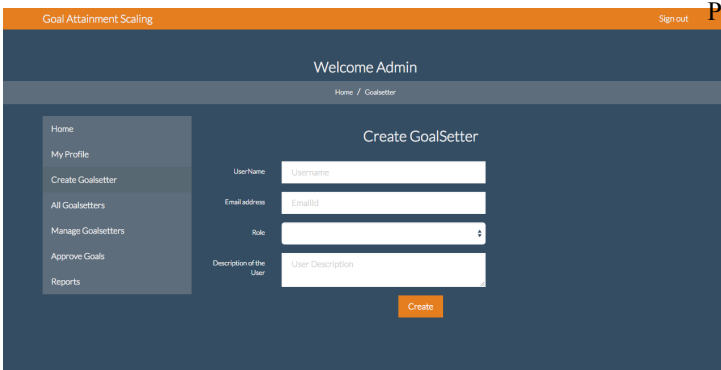
Admin will approve the goals before they can work on goal.



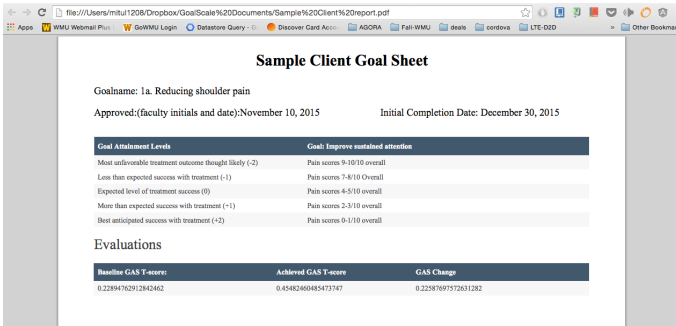
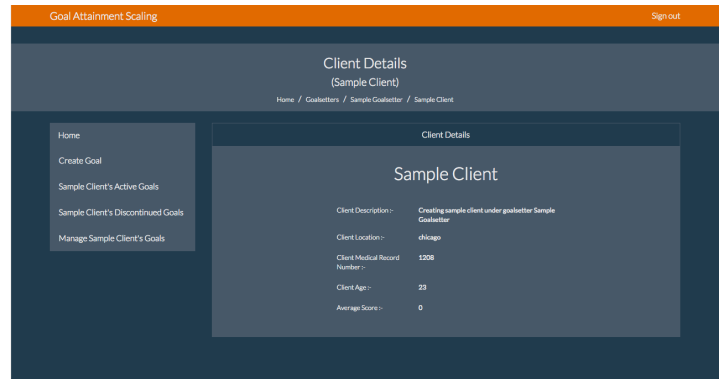
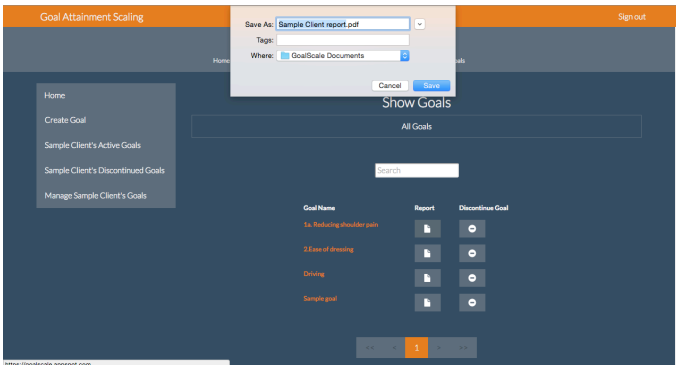
Manage all Goalsetter page.



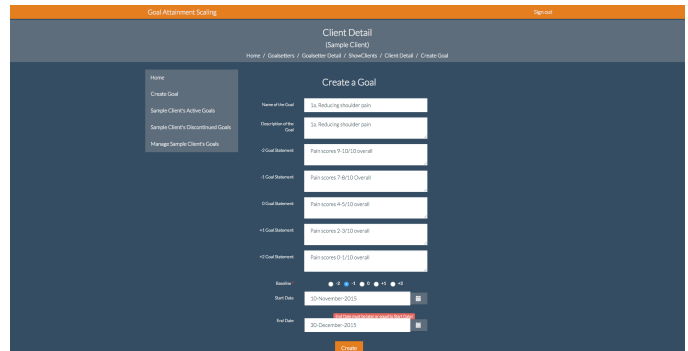
Create Goalsetter:



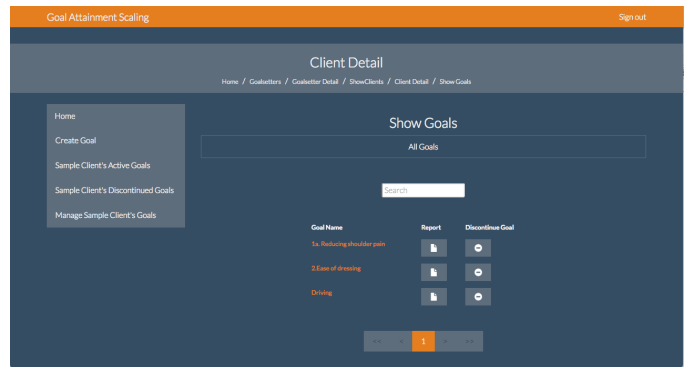
PDF report generation:



Goal creation page:



Active goals page:



Goalsetter: Roles

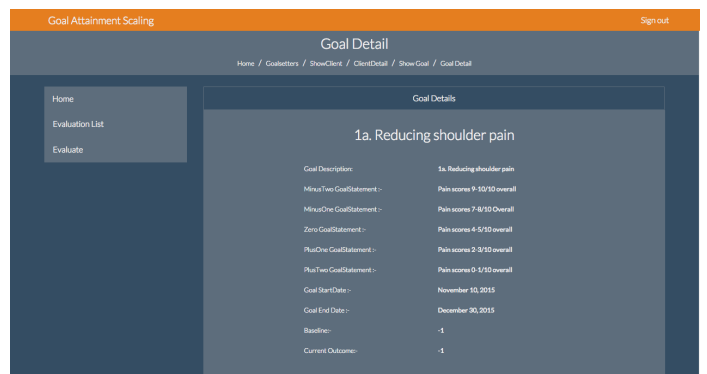
- Can create client under them.
- Can create goals under client and will wait for admin approval.
- After approval they can do evaluations.
- Can download the PDF report of individual goals.

Below screen shots includes a demo of creating three goals under one client and then evaluation of each goal with different score.

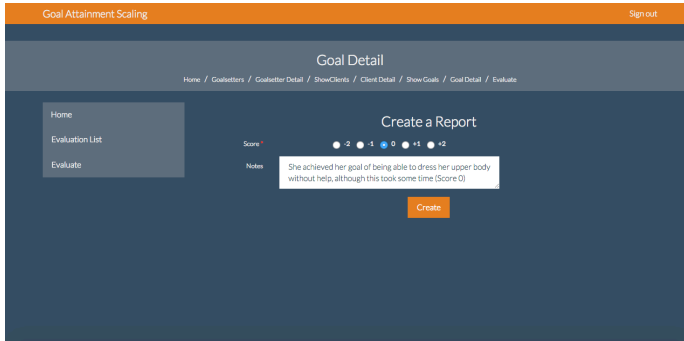
<https://www.kcl.ac.uk/lsm/research/divisions/cicelysaunders/attachments/Tools-GAS-Practical-Guide.pdf>

All sample goals and calculation are taken from above reference paper, GAS application will give you an ease of handling the same scenario with easy and intuitive interface.

Goal detail page:



Evaluation Page:

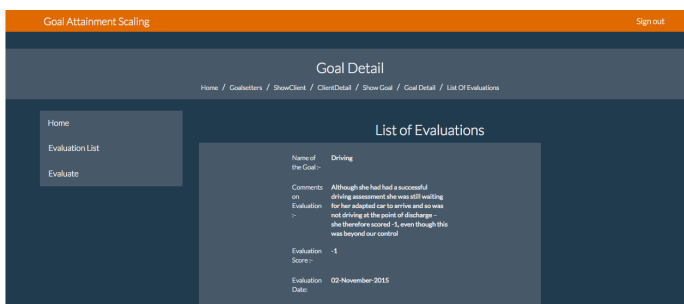


Admin are the highest level users which can access data of all supervisors.

VIII. REFERENCES

- [1] https://en.wikipedia.org/wiki/Goal_Attainment_Scaling
- [2] <https://cloud.google.com/appengine/docs>
- [3] <http://campus.codeschool.com/courses/shaping-up-with-angular-js/>
- [4] <http://getbootstrap.com/getting-started/>

List of Evaluations:



TECHNOLOGY USED

- 1) Google App Engine (Free Quota).
- 2) Angular JS
- 3) Bootstrap 3.0
- 4) Oauth with Google plus
- 5) Google Chart API
- 6) JS pDf open source library.

VI. CHALLENGES

Current application calculate the GAS score considering weight of all goals as 1. In future we have to prioritize goal based on these weights.

VII. SUMMERY

GAS web app have three basic users, Goalsetter which will manage clients, create goal for them, work on their goals, and do evaluations.

Supervisors will manage Goalsetter under them, create them guide them and check performance by comparing their final GAS scores.