Acme PersonalTrainer

Acme, Inc. is a holding that encompasses many companies worldwide, including Acme Personal Trainer, Inc. Their business consists in helping personal trainer publish their working out and customers apply for them.

The goal of this project is to develop a web information system that Acme Personal Trainer, Inc. can use to run their business. This document provides an informal requirement specification. Ask your lecturers for clarifications and details, if necessary.

C-level requirements

Information requirements

1. The actors of the system are administrators, customers, and trainers. For every actor, the system must store a name, an optional middle name, a surname, an optional photo, an email, an optional phone number, an optional address, and an arbitrary number of social profiles. The system must store the following data regarding such profiles: a nick, the name of the social network, a link to a profile in that social network.
2. Actors can exchange messages. For every message, the system must keep track of the sender, the recipient, the moment when it was sent, the subject, the body, its priority, and some optional tags. Priorities are HIGH, NEUTRAL, or LOW, but other values are expected to be defined by the administrator. Every actor has the following message boxes: in box, out box, trash box, notification box, and spam box. When an actor receives a message, it gets to the in box unless the system flags it as spam, in which case it gets to the spam box. When he or she sends a message to another user, it's saved to the out box. When an actor removes a message from a box other than trash box, it is moved to the trash box; when he or she removes it from the trash box, then it is removed from his folders; when a message is not in any folder, it's removed from the system. The previous boxes are pre-defined, and the actors must not be allowed to delete them, to change their names, or to move them. Actors can create new boxes that they can manage arbitrarily; managing boxes includes nesting a folder within another folder. Note that a message may be stored in several boxes, but the system must keep a unique copy.
3. Trainers publish working-out. For every working-out, the system must store a ticker, the moment when it's published, a description, a price, a period to carry it out, and categories to which it belongs. Trainers can only accept one application at most, the others will be rejected by default.
4. The categories of working-outs are organised by the administrators.
5. A customer may apply for a working-out. For every application, the system must store the following data: the moment when the application is registered, some comments and a credit card previously registered in his/her profile. An application may have the following statuses: PENDING, when the customer applies the working-out; ACCEPTED, when the corresponding trainer accepts it; REJECTED, when the corresponding trainer rejects it.
6. A working-out is composed of an arbitrary number of sessions; for each session, the system must store a title, a description, a start moment, an address, and an end moment. Sessions can't overlap, the start moment of the first session must coincide with the start moment of the working-out and the end moment of the last session must coincide with the end moment

of the working-out. Working-outs may be saved in draft mode, which implies that when a working-out is final mode, the corresponding trainer can´t associate sessions anymore.

Functional requirements

7. An actor who is not authenticated must be able to:
    1. Register to the system as a customer or a trainer.
8. An actor who is authenticated must be able to:
    1. Do the same as an actor who is not authenticated but register to the system.
    2. Edit his or her personal data.
    3. Exchange messages with other actors and manage them, which includes listing, showing, sending, and deleting them.
    4. Manage his or her message boxes, which includes listing, showing, creating, deleting, moving and updating them. Except for the system boxes which only can be listed and showed.
9. An actor who is authenticated as a trainer must be able to:
    1. Manage an arbitrary number of working-outs, which includes listing, showing, creating, updating, and deleting them. A working-outs can be saved in draft mode; once they are saved in final mode, they can't be edited or deleted.
    2. Manage the applications for his or her working-outs, which includes listing and updating them. A trainer may update an application to change its status from pending to either accepted or rejected.
10. An actor who is authenticated as a customer must be able to:
    1. Browse the catalogue of working-outs and navigate to the profile of the corresponding trainer, which includes his or her personal data plus his or her list of working-outs.
    2. Filter the catalogue of working-outs using the following filters: a single key word that must appear somewhere in its ticker, description, or address of the sessions; a category to which the task must belong; a range of prices; or a range of dates.
    3. Manage his or her applications, which includes listing them, showing them, and creating them. When a customer applies for a working-out, he or she can add some comments.
    4. Manage their credit card, which includes listing, showing, creating and deleting them. A credit card can only be deleted if it is not associated with any application.
11. An actor who is authenticated as an administrator must be able to:
    1. Create user accounts for new administrators.
    2. The categories evolve independently from working-outs, which means that they can be created or modified independently from whether they are referenced from a working-out or not. It can only be deleted if there is no reference.
    3. Broadcast a message to all the actors of the system.
    4. Display a dashboard with the following information:
        - The average, the minimum, the maximum, and the standard deviation of the number of working-outs per trainer.
        - The average, the minimum, the maximum, and the standard deviation of the number of applications per working-out.
        - The average, the minimum, the maximum, and the standard deviation of the maximum price of the working-outs.
        - The ratio of pending applications.
        - The ratio of accepted applications.

- The ratio of rejected applications.
- The listing of trainers who have published at least 10% more working-outs than the average, ordered by number of applications.
- The listing of customers who have got accepted at least 10% more applications than the average, ordered by number of applications.

Non-functional requirements

12. The system must be available in English and Spanish. (Unless otherwise stated, the data are not required to be available in several languages, only the messages that the system displays.)

13. The system must be easy to customise at run time. The customisation includes but is not limited to: the name of the system (it's "Acme Personal Trainer" by default); the banner shown at the header (it's the one available at https://tinyurl.com/no-sabemos-aun-logo by default); the message that is shown on the welcome page ("Welcome to Acme Personal Trainer! Price, quality, and trust in a single place" is the default welcome message in English; "¡Bienvenidos a Acme Personal Trainer! Precio, calidad y confianza en el mismo sitio" is the default welcome message in Spanish); a list of spam words (it's "sex", "viagra", "cialis", "one million", "you've been selected", "Nigeria", "sexo", "un millón", and "ha sido seleccionado" by default); the applicable VAT percentage (it's "21%" by default); the default country code in telephone numbers (it's "+34"by default); the default list of credit card makes (it's "VISA", "MASTER", "DINNERS", and "AMEX" by default).

14. The system must provide the following leaf categories by default: Active Recovery, Aerobic Exercise, Anaerobic Exercise, Boot Camp, Circuit, Compound Exercises, Cool-Down, Cross-Training, DOMS, Dynamic Warm-Up, Foam Rolling, Functional Moves, Heart Rate Zones, HIIT, Interval Training, Isometrics, Plyometrics, Resistance, Strength Training, Tabata. Their names must be displayed appropriately in Spanish or English depending on the language that the principal's selected.

15. Photos are not required to be stored in the database, but links to external systems like Pinterest.com or Flickr.com, just to mention a couple of examples.

16. When an actor gets a message that contains a spam word, it must be stored in the spam box instead of the input box.

17. Whenever a price is shown, the corresponding VAT tax must be computed and shown in parenthesis next to the price.

18. Every time that an application changes its status, the system must send a message to both the corresponding trainer and the customer to keep them posted. The message must be written in both English and Spanish.

19. Applications must be shown according to the following colour scheme: applications that are pending must be shown using the default colour scheme, unless their period has passed, in ses which case they must be shown in grey; applications that are accepted must be shown in green; applications that are rejected must be shown in orange.

20. Tickers must adhere to the following pattern: "yymmdd-xxxxxx", where "yymmdd" refers to the year, month, and day when the corresponding entity is registered, and "xxxxxx" to a random uppercase alpha-numeric string. No two entities may have the same ticker since it's assumed to be a unique external identifier.

21. Phone numbers should adhere to the following patterns: "+CC (AC) PN", "+CC PN", or "PN": "+CC" denotes a country code in range "+1" up to "+999", "(AC)" denotes an area code in range "(1)" up to "(999)", and "PN" denotes a number that must have at least four digits. Phone numbers with pattern "PN" must be added automatically a default country, which is a parameter that can be changed by administrators. Note that phone numbers should adhere to the previous patterns, but they are not required to. Whenever a phone number that does not match this pattern is entered, the system must ask for confirmation; if the user confirms the number, it then must be stored.

22. Email addresses must adhere to any of the following patterns: "identifier@domain", "alias <identifier@domain>"; administrators may have email addresses of the form "identifier@", or "alias <identifier@>". The identifier is an alpha-numeric string, the domain is a sequence of alpha-numeric strings that are separated by dots, and the alias is a sequence of alphanumeric strings that are separated by spaces.

23. The system must store the following information about credit cards: a holder name, a brand name, a number, an expiration month, an expiration year, and a CVV code, which is an integer between 100 and 999.

B-level requirements

Information requirements

24. Trainers can register their curriculum. Every curriculum has a ticker, a personal record, some education records, some professional records, some endorser records, and some miscellaneous records.

25. A personal record consists of the full name of a trainer, a photo of him or her, his or her email, his or her phone number, and a URL to his or her LinkedIn profile.

26. An education record consists of the title of a diploma, the period during which the trainer was studying, the institution that awarded the diploma, an optional link to an attachment, and some optional comments. Note that an education record may refer to a period that hasn't finished yet if the trainer's still studying.

27. A professional record consists of the name of the company for which a trainer was working, the corresponding period, the role played, an optional link to an attachment, and some optional comments. Note that a professional record may refer to a period that hasn't finished yet.

28. An endorser record consists of the full name of an endorser, his or her email and phone number, a link to his or her LinkedIn profile, and some optional comments.

29. A miscellaneous record consists of a title, an optional link to an attachment, and some optional comments.

30. There are new kind of actors: auditors.

31. Auditors can audit the curricula of the trainers. For every audit, the system must store a record with the moment when the audit was carried out, a title, a description, and some optional attachments.

32. Customers have a finder in which they can specify some filters: a single key word that must appear somewhere in the ticker, description or address of the sessions; a category to which the task must belong; a range of prices; or a range of dates. The finder stores the working-outs that pass the filters for one hour by default.

33. Customers may write endorsement about their trainers and vice versa. For each endorsement, the system must store a moment when it's written, a mark and some comments.

Functional requirements

34. An actor who is authenticated as a trainer must be able to:
    1. Manage his or her curriculum, which includes showing, and creating them.
    2. Manage his or her records, which includes listing, showing, creating, updating and deleting them. Except personal record which once it is created can not be deleted.
    3. Manage his or her endorsement, which includes listing, showing, creating, updating and deleting them. Only can write endorsement about the customer that he or she has attended to any of his or her working-outs.

35. An actor who is authenticated as a auditor must be able to:
    1. List the trainers and display their curriculum.
    2. Manage his or her audit, which includes listing, showing, creating, updating and deleting them.

36. An actor who is authenticated as a customer must be able to:
    1. Change the filters of his or her finder.
    2. Display the working-out in his or her finder.
    3. Manage his or her endorsement, which includes listing, showing, creating, updating and deleting them. Only can write endorsement about the trainer that he or she has attended his working-outs.
    4. List and display ther endorsement that others customer has written about the trainer that he or she has attended his working-outs.

37. An actor who is authenticated as an administrator must be able to:
    1. Create an account for a new audit.
    2. Display a listing of suspicious actors. An actor is considered suspicious if he or she send a message that includes spam words.
    3. Ban an actor who is considered suspicious, which means his or her user account is de-activated.
    4. Unban an actor, which means that his or her user account is re-activated.
    5. Display a dashboard with the following information:
       - The minimum, the maximum, the average, and the standard deviation of the number of endorsements per trainers.
       - The ratio of trainers with an endorsement.
       - The top-three customers that write more endorsement.
       - The ratio of empty versus non-empty finders.

Non-functional requirements

38. The results of a finder are cached for one hour by default. The administrator should be able to configure that period at will to adjust the performance of the system. The minimum time's one hour and the maximum time's 24 hours.
39. The maximum number of results that a finder returns is 10 by default. The administrator should be able to change this parameter to adjust the performance of the system. The absolute maximum is 100 results.
40. Attachments are not required to be stored by the system, but their URLs to external storage systems like Drive.com or Dropbox.com, to mention a few examples.

41. Wherever the profile of a trainer is shown, the system must show his or her mark that is the average of the marks of their endorsement.

A-level requirements

Information requirements

42. There are new kind of actors: nutritionist.
43. Every nutritionnist can write a article.
44. The system must store the following information about the article: the moment when it's published, the title, the description and some tags.
45. The customers and the owner of the article can write some comments about them. The comments are composed by the text and the publication moment.

Functional requirements

46. An actor who is authenticated as a nutritionist must be able to:
    1. Manage his or her articles, which includes listing them, showing them, creating, updating and deleting them. An article can be saved in draft mode; once they are saved in final mode, they can't be edited.
    2. Write comments about his or her articles.
47. An actor who is authenticated as a customer must be able to:
    1. Only premium customer can list and displaying the articles that are published by the nutritionist.
    2. Only premium customer can write comments in the articles.
48. An actor who is authenticated as an administrator must be able to:
    1. Create an account for a new nutritionist.
    2. Launch a process that computes an internal score for every trainer. The score is computed building on the mark of he or she has obtained in his or her endorsement. The system must analyse the comments in the endorsements and compute the number of positive words (p) and the number of negative words (n). The score must be computed as $p - n$ normalised to range -1.00 up to +1.00 using a linear homothetic transformation.
    3. The process must flag the actors as suspicious when their polarity score is too negative.
    4. The threshold between positive and negative polarity score must be customizable. By default, must be -0.5.
    5. Manage the lists of positive and negative words that the system uses to compute the scores, which includes listing, showing, creating, updating, and deleting them.
    6. Display the internal score of the trainers.

Non-functional requirements

49. A customer is considerer premium if he or she has spent more than a certain amount. By default that amount will be 200u.m.
50. The default list of positive words includes "good", "fantastic", "excellent", "great", "amazing", "terrific", "beautiful", and their corresponding Spanish translations. The default list of

negative words includes "not", "bad", "horrible", "average", "disaster", and their corresponding Spanish translations.

51. The system must generate automatic notifications on the following events: when an application changes its status, a working-out is published, and a nutritionist writes a article.