Acme Explorer

Acme, Inc. is a holding that encompasses many companies worldwide, including Acme Explorer, Inc. Their business consists in helping small adventure companies to set up a web site that helps them publicise their activities.

The goal of this project is to develop a web information system that Acme Explorer, Inc. can use to run their business. It is our duty to develop a system that Acme Explorer, Inc. can easily deploy for a variety of adventure companies. Simply put: they do not wish us to develop a multi-tenant system that multiple companies can use concurrently, but a single-tenant system that must be deployed and customised for every individual adventure company. Customisation must be done at deployment time, and later changed if necessary by the system administrators.

Acme Explorer, Inc. will work on a pilot project with a company called "Tanzanika", which specialises in organising trips to Tanzania. The system must be properly customised at deployment time with a banner, a welcome message, and a couple of realistic trips to Tanzania so that "Tanzanika" can try the system and produce feedback as soon as possible.

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, managers, rangers, and explorers. For every actor, the system must store a name, a surname, an email, an optional phone number, an optional address, and an arbitrary number of social identities. The system must store the following data regarding such identities: a nick, the name of the social network, a link to a profile in that social network, and an optional photo. In the case of explorers, the system must also store a list of people to contact in case of emergency; the system must store a name and an email address and/or a phone number for every contact.
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, and its priority. Priorities are HIGH, NEUTRAL, or LOW; no other values are expected. Actors can create custom folders, which may be arbitrarily nested, and use them to organise their messages. Furthermore, every actor has the following system folders: "in box", "out box", "notification box", "trash 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, a copy is saved to the "out box". When an actor removes a message from a folder other than "trash box", it is moved to folder "trash box"; when he or she removes it from folder "trash box", then it is actually removed from the system. System folders are pre-defined and the actors must not be allowed to delete them, to change their names, or to move them.
3. Managers organise trips. For every trip, the system must store a ticker, the ranger who guides it, a title, a description, a price, a list of requirements for explorers, a legal text that regulates it, a publication date after which the trip is publicly visible and cannot be modified or deleted, and the dates when the trip starts and ends. Some trips may be cancelled after

they are published, in which case the system must store the reason why. Trips may be tagged using arbitrary tags that are picked from an open taxonomy. Legal texts have a title, a body, a number of applicable laws, and the moment when it was registered.

4. Trips are composed of stages. The system must store the following data for each stage: a title, a description, and a price. The price of a trip is automatically computed building on the price of the individual stages plus the corresponding VAT tax.
5. A trip belongs to a category. For each category, the system must store a name, which must be unique within the context of the same parent category; that is, several categories may have the same name as long as they do not have the same parent. Categories are organised into a tree whose root is a fictitious category called "CATEGORY".
6. Explorers apply for trips. For every application, the system must store the moment when it's made, a status, and some optional comments by the applicant. When an application is made, the initial status is "PENDING"; later, the corresponding manager can change it to "REJECTED", which means that the applicant is denied to enrol the trip, in which case the system must record the reason why, or "DUE", which means that it'll be accepted as soon as the applicant provides a valid credit card. An application with status "DUE" changes automatically to status "ACCEPTED" whenever the corresponding applicant provides a valid credit card. An application with status "ACCEPTED" can change to status "CANCELLED" by the corresponding applicant.
7. 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.
8. Tickers are generated automatically, must be unique, and cannot be modified by any actor. They must adhere to the following pattern: "YYMMDD-WWWW", where "YYMMDD" refers to the current year, month, and day, whereas "WWWW" are four uppercase random letters.
9. 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.

Functional requirements

10. An actor who is not authenticated must be able to:
    1. Register to the system as a ranger or an explorer.
    2. Browse the list of trips and display them.
    3. Search for trips using a single key word that must be contained either in their tickers, titles, or descriptions.
    4. Browse the list of trips by navigating the tree of categories.
11. 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 deleting and moving them from one folder to another folder.
    4. Manage his or her message folders, except for the system folders.
12. An actor who is authenticated as a manager must be able to:
    1. Manage an arbitrary number of trips, which includes creating and listing them, and modifying or deleting them as long as they have not been published.

2. Manage the applications for the trips that they manage, which includes listing them and changing their status from “PENDING” to “REJECTED” or “DUE”.
3. Cancel any trip that has been published but has not started, yet.

13. An actor who is authenticated as an explorer must be able to:
    1. Apply for a trip.
    2. List the applications that he or she’s made, grouped by status.
    3. Enter a credit card to get an application accepted, as long as its status is “DUE”
    4. Cancel a trip with status “ACCEPTED” as long as its starting date’s not passed.
14. An actor who is authenticated as an administrator must be able to:
    1. Create accounts for new rangers and managers.
    2. Manage the catalogue of legal texts. A legal text can be edited as many times as necessary as long as the administrator saves it in draft mode. Once it’s saved in final mode, it cannot be edited or deleted. Only legal texts that are saved in final mode can be referenced by trips.
    3. Manage the catalogue of tags. Note that a tag may be modified as long as it’s not been used to tag any trip; they can be deleted at any time.
    4. Manage the taxonomies of categories. Note that categories evolve independently from trips, which means that they can be created, modified, or deleted independently from whether they are referenced from a trip or not.
    5. Broadcast a notification to all of the actors of the system. The notification must be stored at the “notification box” folder.
    6. Display a dashboard with the following information:
        - The average, the minimum, the maximum, and the standard deviation of the number of applications per trip.
        - The average, the minimum, the maximum, and the standard deviation of the number of trips managed per manager.
        - The average, the minimum, the maximum, and the standard deviation of the price of the trips.
        - The average, the minimum, the maximum, and the standard deviation of the number trips guided per ranger.
        - The ratio of applications with status “PENDING”.
        - The ratio of applications with status “DUE”.
        - The ratio of applications with status “ACCEPTED”.
        - The ratio of applications with status “CANCELLED”.
        - The ratio of trips that have been cancelled versus the total number of trips that have been organised.
        - The listing of trips that have got at least 10% more applications than the average, ordered by number of applications.
        - A table with the number of times that each legal text’s been referenced.

Non-functional requirements

15. The system must be available in English and Spanish. (The data themselves are not required to be available in several languages, only the messages that the system displays.)
16. The system must be easy to customise at deployment time and run time. The customisation for the Tanzanika pilot project includes the following parameters: the banner of the adventure company (http://creek-tours.com/wp-content/uploads/Kenya-Tanzania-Family-Safari-banner.jpg), the welcome message to be shown in the main page (“Tanzanika is an adventure company that makes your explorer’s dreams true”, “Tanzanika es la empresa de aventuras que hará tus sueños de explorador realidad”), the default listing of spam words (“viagra”, “cialis", “sex”, and “jes extender”), the default VAT tax (21.00%), the default country code (“+34”), the default catalogue of tags (“country”, “expertise”, “dangerousness”), the

default tree of categories ("CATEGORY" -> ("Safari" -> ("Ground" -> ("Savana", "Mountain"), "Water" -> ("Lake", "River")), "Climbing" -> ("Mountain", "River"))), the catalogue of legal texts (invent a couple of legal texts in both English and Spanish), and other configuration parameters that might make sense.

17. Photos are not required to be stored in the database, but links to external systems like Flickr.com, Tumblr.com, or Pinterest.com.
18. Every time that an application changes its status, the system must send a message to both the manager and the explorer involved to let them know of the change. The message must be stored in folder "notification folder".
19. Whenever an application is shown, it must be rendered differently depending on its status, namely: pending applications must be shown on a white background, unless the corresponding trip is going to start in less than a month, in which case, the background must be red; rejected applications must be shown on a grey background; due applications must be shown on a yellow background; accepted applications must be shown on a green background; and cancelled applications must be shown on a cyan background.

B-level requirements

Information requirements

1. Rangers can register their curricula. Every curriculum has a ticker, a personal record, some education records, some professional records, some endorser records, and some miscellaneous records.
2. A personal record consists of the full name of a candidate, a photo of him or her, his or her email, his or her phone number, and a URL to his or her LinkedIn profile.
3. An education record consists of the title of a diploma, the period during which the ranger 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 ranger's still studying.
4. A professional record consists of the name of the company for which a ranger was working, the corresponding period of time, 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.
5. 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.
6. A miscellaneous record consists of a title, an optional link to an attachment, and some optional comments.
7. Explorers have a finder in which they can specify some search criteria, namely: a single key word, a price range, and/or a date range to search for trips. The key word must be contained in the ticker, the title, or the description of the trips returned, which must not exceed the price range and must be organised within the date range specified. Initially, every search criteria must be null, which means that every trip must be returned.
8. There's a new kind of actor in the system: auditors.
9. Auditors can write notes on the trips, which can be displayed by the corresponding managers only. The system must store the following information regarding the notes: the moment when they are created by an auditor, the remark that he or she writes, the eventual reply by the corresponding manager, and the moment when he or she replies.
10. Auditors can audit trips. 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.

Functional requirements

11. An actor who is not authenticated must be able to:
    1. Navigate from every trip to the profile of the corresponding ranger and display his or her curriculum, if any.
    2. Navigate from every trip to the corresponding audit record, if any, and display it.
12. An actor who is authenticated as a ranger must be able to:
    1. Manage his or her curriculum, which includes displaying, editing, and deleting it.
13. An actor who is authenticated as a manager must be able to:
    1. List the notes that an auditor has written on his or her trips and write a reply.
14. An actor who is authenticated as an auditor must be able to:
    1. Manage his notes on trips, which includes listing and writing them. Once a note is written, it cannot be modified at all or deleted.
    2. Manage his or her audit records, which includes listing, writing, modifying, and deleting them. Note that audit records can be modified or deleted as long as they are saved in draft mode. Once they are saved in final mode, they cannot be modified or deleted.
15. An actor who is authenticated as an explorer must be able to:
    1. Manage his or her finder, which includes modifying it and consulting its results, that is, the trips that meet the search criteria.
16. An actor who is authenticated as an administrator must be able to:
    1. List suspicious managers and rangers. An actor is considered suspicious if he or she publishes some data that includes a spam word.
    2. Ban another actor who is considered suspicious, which means that his or her user account is de-activated.
    3. Unban another actor, which means that his or her user account is re-activated.
    4. Display a dashboard with the following information:
        - The minimum, the maximum, the average, and the standard deviation of the number of notes per trip.
        - The minimum, the maximum, the average, and the standard deviation of the number of audit records per trip.
        - The ratio of trips with an audit record.
        - The ratio of rangers who have registered their curricula.
        - The ratio of rangers whose curriculum's been endorsed.
        - The ratio of suspicious managers.
        - The ratio of suspicious rangers.

Non-functional requirements

17. The results of a finder are cached is one hour by default. The administrator should be able to configure that time at will in order to adjust the performance of the system. The minimum time's one hour and the maximum time's 24 hours.
18. The maximum number of results that a finder returns is 10 by default. The administrator should be able to change this parameter in order to adjust the performance of the system. The absolute maximum is 100 results.
19. 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.

A-level requirements

Information requirements

20. There's a new kind of actors in the system: sponsors, who support some trips by means of sponsorships.
21. The system must store the following data regarding sponsorships: a URL to a banner, a link to an additional info page, and a valid credit card.
22. Managers can organise survival classes and offer them with their trips. For every such class, the system must store the following information: a title, a description, the moment when it's going to be organised, and the location where it's going to be organised. The location consists of a name and GPS co-ordinates.
23. Explorers can write stories about their trips. For every story, the system must store a title, a piece of text, some attachments (for instance, pictures, PDF documents, or links to blogs, to mention a few examples), and, obviously, the writer and the trip involved.

Functional requirements

24. An actor who is authenticated as a manager must be able to:
    1. Manage the survival classes that are associated with his or her trips, which includes listing, creating, modifying, and deleting them.
25. An actor who is authenticated as an explorer must be able to:
    1. Enrol a survival class that is offered by any of the trips for which he or she has an accepted application as long as it isn't over.
    2. Write a story and associate it with any of the trips for which they have an accepted application as long as the trip is over.

Non-functional requirements

26. Whenever a trip is displayed, a random sponsorship must be selected and its banner shown, if any.