Software processes, quality, and standards (course and arrangement), 29.09.2022

TALLINN UNIVERSITY OF TECHNOLOGY

DEPARTMENT OF SOFTWARE SCIENCE

Filmography website for the Ministry of Culture of Estonia

Request for Supply (excerpts)

Lab 1 in subject "Software Quality and standards" (IDY0204)

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1. Project description

1.1. The organization and the system to be acquired

The acquirer: The Ministry of Culture of Estonia, Visit Estonia brand
The system to be acquired: The website containing the content on the film industry of Estonia: a public database of films on a specific range of topics. It will contain films with descriptions, ratings, details on actors, plot, history of the making process, and interesting facts
Goals of the system: To promote tourism in Estonia, attract the attention of the International audience and spread information on cultural aspects of Estonia and various educational purposes
Value of the system: the system will bring value as it will allow increasing the number of tourists to Estonia, leverage the interest in Estonia's cultural heritage as well as the modern art
Funding the project: governmental help, private sponsors, advertisement on the site, film promotions
Stakeholders-expectations:

- Government – increase interest and popularity of the Estonian culture
- Developers – create a system that can resist heavy loads of requests and satisfy the expectations of other stakeholders
- Users – have a system that can open to them the video format content of Estonia, be able to interact with the system and leave their feedback
- Manager – manage the content of the system, creating back-ups
- Third-party studios – have a platform to promote and post their created content publicly

Budget: 96800 euro
Price per hour: 80 euro
Hours of work: 960

1.2. The system to be acquired

The system provides similar features to a well-known film review service IMDb. However, it focuses on the Estonian film industry rather than the international cinema industry. In addition, the aim is to provide a broader range of additional features that allow users and young producers/film directors to discuss and promote new, commercial, as well as non-profitable and independent films from a wide range of studios/independent creators, as well as educational institutions. This is a combination of software with a system.

Users and their usage of the system:
Third-party studio:

- Creating requests to add their film to the library

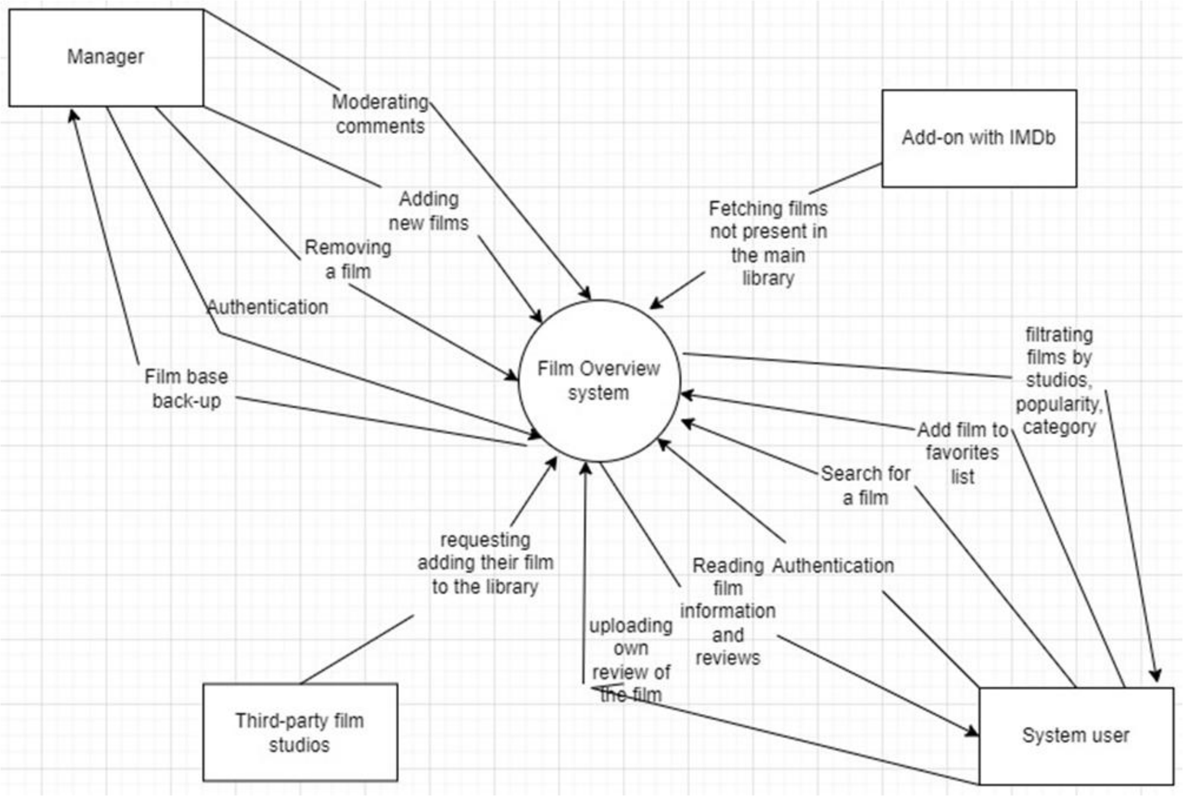
System user:

- Searching for films
- Filtrating films by studios, popularity, category, topic
- Adding film to the favourite list
- Authentication
- Viewing the film’s details page and the reviews of the film
- Submitting own review of a film

Manager:

- Managing the film database (updating information about films, adding new films, archiving obsolete ones)
- Moderating user reviews of the films
- Creating back-ups of the film database
- Authentication

System context diagram:


Manager
Moderating comments
Adding new films
Removing a film
Authentication
Film base back-up
Add-on with IMDb
Fetching films not present in the main library
Film Overview system
filtrating films by studios, popularity, category
Add film to favorites list
Search for a film
Reading film information and reviews
Authentication
uploading own review of the film
requesting adding their film to the library
Third-party film studios
System user

Components to be procured:

- Code
- Documentation

Rights to be procured:

- The above-described product
- Availability on the public Internet
- The quantity of the service is 1. However, copies could be distributed to places located nearby the targeted customer for faster response time
- Creation time around half a year
- The estimated cost is around 85000 euros

2. Requirements

2.1. Functional requirements

Use Case ID	UC_001
Use Case Name	Successful registration of a system user
Primary Actor	System user
Preconditions	● User has access to the main page of the site ● User has access to the 'sign up' button ● User has a valid email ● User pressed the 'sign up' button
Postconditions	User account was created and saved in the system and user was redirected to main page
Main Success Scenario	1. User redirected to the signup page 2. User fills the form with a valid name, email and password 3. User submits the data to the form by clicking 'sign up' button

Use Case ID	UC_002
Use Case Name	Failed registration of a system user because of an empty name
Primary Actor	System user
Preconditions	● User has access to the main page of the site ● User has access to the 'sign up' button ● User has a valid email ● User pressed the 'sign up' button
Postconditions	A user account was not created and not saved in the system and the warning message pop-up appears
Main Success Scenario	1. User redirected to the signup page 2. User fills the form with an empty name, valid email and password 3. User submits the data to the form by clicking 'sign up' button

Use Case ID	UC_003
Use Case Name	Successfull log in of the user
Primary Actor	System user
Preconditions	● User has access to the main page of the site ● User has access to the 'log in' button ● User has a valid username and password ● User pressed the 'login' button
Postconditions	The user is logged-in and redirected to the main page
Main Success Scenario	1. User is redirected to the login page 2. User fills the form with username and password 3. User submits the data to the form by clicking 'log in' button 4. The user is refirected to the main page

Use Case ID	UC_004
Use Case Name	Failed log in of the user due to incorrect password
Primary Actor	System user
Preconditions	● User has access to the main page of the site ● User has access to the 'log in' button ● User has valid username and invalid password ● User pressed the 'login' button
Postconditions	The user is not logged in and the error message is shown "No access to the website"
Main Success Scenario	1. User is redirected to the login page 2. User fills the form with username and password 3. User submits the data to the form clicking 'log in' button 4. The error message about invalid credentials is shown

Use Case ID	UC_005
Use Case Name	User deletion
Primary Actor	System user
Preconditions	● User has access to the profile settings page ● User has access to the ‘delete user’ button ● User presses the “delete user” button
Postconditions	The message with the information that user is deleted appears
Main Success Scenario	1. User is redirected to the profile settings page 2. User presses the “delete user” button 3. The pop-up with the confirmation question appears 5. User presses the delete button on a confirmation pop-up 6. The message with the information that user is deleted appears

Use Case ID	UC_006
Use Case Name	Successfull creation of a comment
Primary Actor	System user
Preconditions	● User has access to the comments section and corresponding film ● User has acces to the comment text form ● User types a comment ● User presses the “add a comment” button
Postconditions	The comment is posted
Main Success Scenario	1. User chooses a film he wants to comment 2. User fills in the comment form 3. User presses the “add a comment” button 4. The comment is posted

Use Case ID	UC_007
Use Case Name	Editing a comment
Primary Actor	System user
Preconditions	● User has access to the comments section of the corresponding film ● User has access to the comment text form ● User has access to the “change a comment” button below comment that was created by this particular user ●
Postconditions	The comment is posted
Main Success Scenario	1. User presses “change a comment” button 2. User fills in the comment form 3. User presses the “add a comment” button 5. The comment is posted

Use Case ID	UC_008
Use Case Name	Successfull deletion of the comment
Primary Actor	System user
Preconditions	● User has access to the comments section of the corresponding film ● User has acces to the comment text form ● User has access to the “delete a comment” button below comment that was created by this particular user
Postconditions	The comment is deleted
Main Success Scenario	1. User presses the “delete a comment” button 2. The comment is deleted

Use Case ID	UC_009
Use Case Name	Search films
Primary Actor	System user
Preconditions	● User has access to the search field
Postconditions	The list of films filtered by the search text is presented
Main Success Scenario	1. User enters a text in the search field 2. The films are filtered by the following condition: name of the film contains the search text

Use Case ID	UC_010
Use Case Name	Rate the film
Primary Actor	System user
Preconditions	● User has access to the film page ● User can click on rate scale
Postconditions	The rate is given to the film by the user
Main Success Scenario	1. User clicks the rate scale and chooses the rate from 1 to 5 2. The rate of the user for this film is saved

2.2. Non-functional requirements

Use Case ID	UC_011
Use Case Name	Availability of the system
Primary Actor	System
Preconditions	● System is not on the maintenance
Postconditions	
Success Criteria	1. System should be up and running at least 99.99% of time (168 hours a week)

Use Case ID	UC_012
Use Case Name	Hashing the passwords in the database
Primary Actor	System
Preconditions	● System is not on the maintenance ● System uses a database that supports hashing functions
Postconditions	
Success Criteria	1. All passwords in the database are hashed

Use Case ID	UC_013
Use Case Name	System should not use more than 500MB RAM
Primary Actor	System
Preconditions	● System is running in a browser on a user’s device
Postconditions	
Success Criteria	1. The process of running the system takes less than 500MB of RAM of the user’s device

Use Case ID	UC_014
Use Case Name	System should support 1000 concurrent requests at the same time
Primary Actor	System
Preconditions	● System is running in a browser on a user’s device
Postconditions	
Success Criteria	1. Running 1000 concurrent requests does not affect system’s running state and perfomance metrics: website speed is not lower than average: - response time < 3 seconds - time to render < 3 seconds

Use Case ID	UC_015
Use Case Name	Saving a new comment in the database not longer that 2 seconds
Primary Actor	System
Preconditions	● System is running on a user’s device
Postconditions	
Success Criteria	1. When user leaves a comment, the comment is saved in the database not later than in 2 minutes after submitting the comment form

Use Case ID	UC_016
Use Case Name	Support of multiple browsers
Primary Actor	System
Preconditions	● System is running
Postconditions	
Success Criteria	1. System should be supported in the latest versions of Chrome, Opera, Firefox and Safari 2. The design is adapted to all above-mentioned browsers

Use Case ID	UC_017
Use Case Name	Response not longer than 2500ms
Primary Actor	System
Preconditions	● System is running
Postconditions	

Success Criteria	1. Response time of the database should not be longer than 2500 ms

Use Case ID	UC_018
Use Case Name	Registration of user-type accounts
Primary Actor	System
Preconditions	● System is running
Postconditions	
Success Criteria	1. When a new user registers in the system, only one type of permission group is available: user-type

Use Case ID	UC_019
Use Case Name	Compatibility with Google Translate extension
Primary Actor	System
Preconditions	● System is running
Postconditions	
Success Criteria	1. When user visits any page of the website, the text is available for translation via Google Translation add-on

Use Case ID	UC_020
Use Case Name	Database access
Primary Actor	System
Preconditions	● System can be running or stopped
Postconditions	
Success Criteria	1. The access to the system database is available only through the system servers

3. Planning the acquisition activities

3.1. Software Development Lifecycle

We have chosen Agile processes as our software development lifecycle because the government wants to test the MVP to decide whether the idea is viable. Our goal is to create MVP in 2 months with Sprints every week where business stakeholders from the government are invited, and the discussions on the project are taken. After one month of MVP development, tests are agreed upon with the stakeholder. After two months of development, if the project suits the government and test cases are passed, the development continues for four additional months with the demonstration of the progress every three weeks. If needed, there will be additional meetings for discussions and clarification of the details. There will be three budget agreements: at the start and after presenting the MVP.

3.2. Participation of the procurer

The procurer should

- conduct preliminary research on existing websites in the given field in order to assess possible solutions and costs of development - nearly 1 month
- in collaboration with stakeholders inside as well as outside the organization, design the call for proposal with high-level requirements for the system - nearly 1 month
- design the selection criteria and other relevant procedures of governmental tender accordingly - 2 weeks
- publish the call for proposals in official websites and in Public Procurement Register - 2 days
- monitor applications/bids during the tender application period - nearly 1 month
- form an acquiring comitee consisting of representatives of tech, legal, finance, and other related units of organization - ongoing
- organize the selection process, assess bids and select the development company - nearly 2 weeks
- take part in software development iterations by monitoring time scedule, testing, and change management for requirement - nearly 6 months

Components needed: access to Public Procurement Register, ongoing communication among stakeholders within and outside the organization, ongoing communicaton during the software development process.

Total time needed for participation of the procurer: nearly 10 months

3.3 Main risks

- R-001: Incompatibility of the in-house servers with the development servers
- R-002: Restriction of the databases access, of the system access
- R-003: Overloaded by users system and time-outed responses
- R-004: Cyber-security of vulnerability issues
- R-005: Insufficient technical infrastructure
- R-006: Unexpected shrink(change) of the development team

- R-007: Delayed budget payments
- R-008: Non-compliance to the GDPR
- R-009: Breakage on new browser updates from the supported set of browsers
- R-010: Delay for at least one sprint period from the scheduled plan

3.4 Change management for requirements

If the requirements do not change the initial project timeframe and costs, changes to the requirements can be proposed. If needed, the requirements for the core functionality can be considered, given a new budget review and time review. It should be discussed in the meeting between the developers, the business side of the government and the budget acquisitions.

3.5 Acceptance plan

The customer accepts the system according to all negotiated requirements. Initially, all requirements are divided into three categories by the client in general meetings on working with requirements:

- Core requirements without which the program is not accepted .That includes:
  - authentication both for users and administrators
  - fetching the list of available films
  - reviewing the film’s details
  - leaving a comment under the film as a signed-in user
  - editing the details of the film by the administrator
- Middle requirements are pretty severe but can be considered workarounds. That includes:
  - IMDb add-on
  - specific authentication for the film studios
  - previewing the films in film details page
  - back-up functionality
  - internationalization
- 'Nice to have' - optional requirements. That includes:
  - selectable dark mode
  - PWA possibility
  - customization of profiles

In addition to the requirements, acceptance tests are defined (with which the system could be finished).

After the product under development passes the final sprint review stage, this is when the product is handed over. That is, the product is deployed on the upper level (production) - freely accessible by the end user, and has passed all preliminary testing stages (the final regression showed an acceptable rate of existing bugs in the system of no more than 2% of the agreed functionality).

Consequently, acceptance testing is carried out after the regression: this activity will involve some companies/persons that own films to be published on the site in testing.

All activities related to the final delivery and acceptance testing, as well as the complete handover of the project, are on schedule as stipulated in the contract.

The infrastructure needed for the project: Java and frameworks to build the solution, database - MongoDB, Jira for management, AWS services to implement the cloud solution, and tools for DevOps and cybersecurity.

Final acceptance procedures :

- Prepared environment - everything is preinstalled, all services are running, and users are free to use the product.
- Agreed documentation is prepared and shared with the client.
- Licenses and domains are registered according to laws.
- Support command is prepared to respond to emerging issues and mandatory tasks within an agreed timeframe of every 3 weeks (creating backups, monitoring the health of the system in general and services in particular)