

# EGS ONLINE

*Software Requirements and Specifications*



"We are EGS."

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Company Mascot

Minister of Finance

Supreme President

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## INTRODUCTION

This document proceeds with specifications and requirements for the EGS Online product, a prospective revolutionary online gaming community.

## PURPOSE

At this time, Elite Gaming Society (EGS) is experiencing difficulty gaining traction with regards to our user base. We lack exposure, and as such, have a very small public-facing user base. EGS seeks to tap into new markets, specifically the Internet, targeting a wider audience of gamer enthusiasts. This document proposes requirements for a new platform, "EGS Online", with a focus on social networking.

The goals of this new website include:

- Promote social engagement of the EGS brand
- Create a transparent revenue stream via the introduction of advertising

Objectives are:

- Increase the active EGS user base by up to 100%
- Increase revenue such that the website can pay for itself with respect to maintenance and provide profit to the company

## SCOPE

Our product, EGS Online, will be reachable at <https://www.egsonline.com/>

The software product:

- Must provide a facility for users to share game tutorials and FAQs
- Must provide a facility for users to share legal cheat codes
- Must have a video game database for tracking known titles
- Must allow for users to post localized classified ads safely
- Must allow for healthy user interaction via discussion forum
- Must allow for video games reviews to be posted by users
- Must interact with subscribers via targeted email newsletters
- Must provide an eCommerce solution for users to buy EGS, Inc. gear
- Must provide an embedded electronic advertising campaign that can create revenue traceable to EGS, Inc.

Benefits line up with overall product goals to provide a new user base with the potential of growth and new steady stream of income. Both will allow EGS, Inc. to improve brand reputation and market value.

## DEFINITIONS, ACRONYMS, ABBREVIATIONS

**Advertising Campaign:** organized mechanism of promoting a product or service

**Admin:** short for “Administrator”, used interchangeably within this document

**AAA:** Authentication, authorization, and accounting

**CDN:** Content Delivery Network is a system of distributed servers (network) that deliver webpages and other Web content to a user based on the geographic locations of the user, the origin of the webpage and a content delivery server.

**eCommerce:** electronically initiated commercial transactions

**FAQ:** Frequently Asked Questions

**Forum:** online discussion board

**RDBMS:** Relational Database Management System A relational database management system (RDBMS) is a program that lets you create, update, and administer a relational database

**RWB:** Responsive web design is an approach to web design aimed at allowing desktop webpages to be viewed in response to the size of the device one is viewing with.

**SQL:** Structured Query Language (SQL) is a standard computer language for relational database management and data manipulation. SQL is used to query, insert, update and modify data.

## REFERENCES

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## OVERALL DESCRIPTION

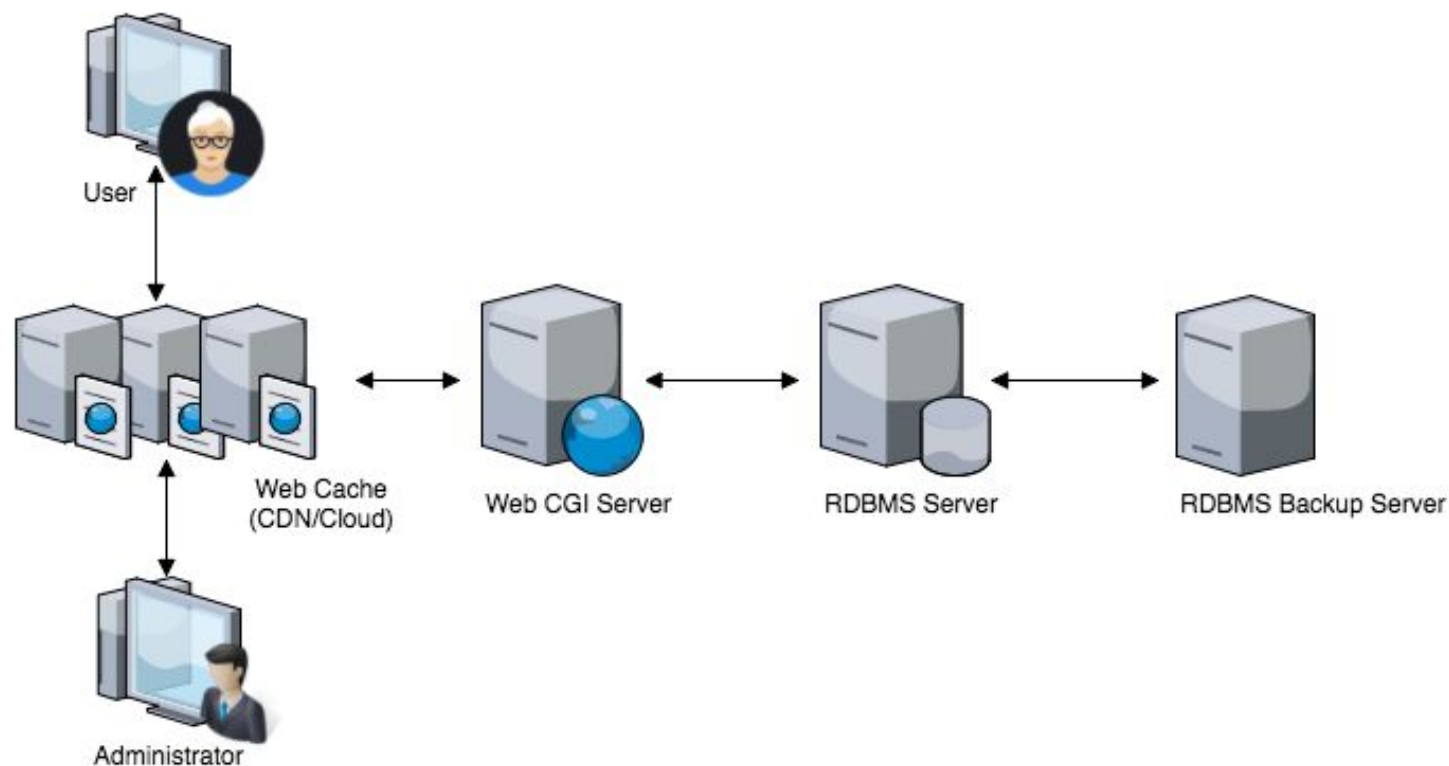
### PRODUCT PERSPECTIVE

EGS Online is a standalone product in the EGS family. It is in fact a large platform comprised of various components, each of which provides a separate perspective into fulfilling the EGS mission. EGS Online requires a well-planned technical and environmental architecture in order to be executed properly.

From a technical perspective, we would like to set up EGS Online in such a way that permits vertical and horizontal scaling in the future. EGS Online is expected to utilize a web platform that allows this. For this reason, we have chosen to require an online cloud hosting provider to cache or load balance (where appropriate) our client-facing assets, so that we can deliver the EGS Online web content across boundaries that would otherwise require EGS, Inc. to invest in its own cloud IT infrastructure. We also require a degree of consistency that mandates backups, in case of disaster ("plan for failure").

The user interface of EGS Online is the primary method of interaction with the service. It will be acted upon by two classes of users: users (the general public) and administrators (employees of EGS, Inc.). They will access our website, hosted by an online cloud provider such as Amazon, over the Internet. Data entry will be transmitted to a relational database server with an emphasis of data backup onto another offshore database server.

An example diagram portraying this scenario is as follows:





## PRODUCTION FUNCTIONS

The software will provide user-centric facilities for the following:

- Game tutorial and FAQ sharing
- Game cheat code sharing (where legal)
- Game catalog browsing and detail display
- Classified ad postings for gaming related technology
- Open-ended gaming discussion
- Reviews and editorials for gaming products
- Newsletter subscription
- Buying EGS, Inc. gear
- Advertising

The functions will be woven together via a web-based portal that has a consistent look-and-feel driven by user-friendly navigation elements.

## USER CHARACTERISTICS

The primary audience of our website is the modern day video gaming community. To understand and appreciate, our website it is advised to have some general game knowledge about video games (console or PC). Important attention to detail must be paid to the ability to navigate through the website. For example, users should not seek further than a traditional menu and search bar layout to find content they desire. As for as educational level, users need to have minimum computer literacy but should be able to read and write in English. Navigating our is intended to be easy so no heavy technical experience is required. At this time, we do not plan to internationalize the portal.

## CONSTRAINTS

In order for EGS Online to be successful, engineers must consider:

- **Regulatory policies**  
The legal department must oversee the product at regular intervals so as to ensure compliance with state and federal laws. For registered users, “Terms of Service” documents must be written to consider eCommerce trade restrictions as well as minimum age requirements (18+).
- **Hardware limitations**  
Engineers need adequate hardware to build and test the EGS Online service. This includes conventional X86 hardware for programmers and DevOps.
- **Interfaces to other applications**  
At this time, EGS Online will not interact with other parts of the EGS backbone infrastructure. In the future we intend to absorb metrics to improve corporate marketing in the form of reports.
- **Parallel operation**  
The EGS Online database backplane must operate in parallel to the web servers, with an equivalent uptime guarantee.
- **Audit functions**  
EGS Online should be supported by monitoring tools that routinely engage the server to test uptime.
- **Control functions**  
EGS Online requires a readily-available “emergency” on-off switch, in the event of a technical or legal disaster, so that administrators can turn off the site while showing our users a message explaining the outage.
- **Higher-order language requirements**  
EGS Online is expected to be programmed with conventional languages using a consensual style guide, so that engineers may understand and extend the system at any given point without needing to discover cryptic “code spaghetti”.
- **Signal handshake protocols**  
All client-facing traffic must be SSL encrypted without exception. Thus, clients are required to have SSL-compatible browsers.
- **Reliability requirements**  
EGS Online must be tested appropriately by a quality assurance team for “best effort” reliability.
- **Criticality of the application**  
EGS Online, when released, will be considered a medium criticality application. Although expected to provide a stream of revenue, EGS Online is not absolutely necessary for EGS to stay afloat at this time.
- **Safety and security**  
For the safety of our consumers, one of the most important measures we will apply is mandatory SSL encryption across the entire EGS Online service. This includes internal networking between cloud nodes. Furthermore, measures must be taken to prevent EGS Online systems from leaking user information or providing backdoor access to critical EGS, Inc. infrastructure. This should be evaluated in a full security audit prior to release.

## ASSUMPTIONS AND DEPENDENCIES

- **Regulatory policies**

It is assumed that the material in this SRS is legally achievable. If legal conflict is found with requirements presented by this document, then the legal department shall be consulted again and SRS be modified to satisfaction.

- **Hardware limitations**

It is assumed that engineering staff will be provided with appropriately powered workstations to complete development. If EGS cannot expense adequate resources for development, then the SRS shall be adjusted to compensate for these limitations.

- **Interfaces to other applications**

It is assumed at this time that no software integration to other EGS services (i.e. accounting) will occur. If stakeholders later require such interoperability, then a succeeding project shall be written.

- **Parallel operation**

It is assumed that database systems will operate independent of web servers with equally remarkable uptime. If the database is down, no one will be able to access their account or search information. In order for that to not happen we should have a redundant database infrastructure.

- **Audit functions**

It is assumed that EGS, Inc.'s existing monitoring systems will be employed with EGS Online. If this is determined to not be possible, then a basic monitoring solution must be discovered prior to EGS Online deployment.

- **Control functions**

It is assumed that operational contingency plans are tested and in place for EGS Online. If this is not the case, then EGS Online cannot ship.

- **Higher-order language requirements**

It is assumed that EGS Online development will be prefaced with a decided software framework that falls within constraints. If this is not the case, EGS Online development is blocked until platform development is finalized.

- **Signal handshake protocols**

It is assumed that EGS, Inc. has the ability to purchase SSL certificates for EGS Online. If this is not the case, EGS Online can still be developed but is not to be made public until certificates are purchased.

- **Reliability requirements**

It is assumed that test plans will be developed for the requirements described here as part of development. If this cannot be done, then measures must be taken to allocate appropriate quality assurance resources.

- **Criticality of the application**

It is assumed that EGS Online is of medium criticality. Thus, there is not much concern. However, measures must be taken to ensure consistent uptime.

- **Safety and security**

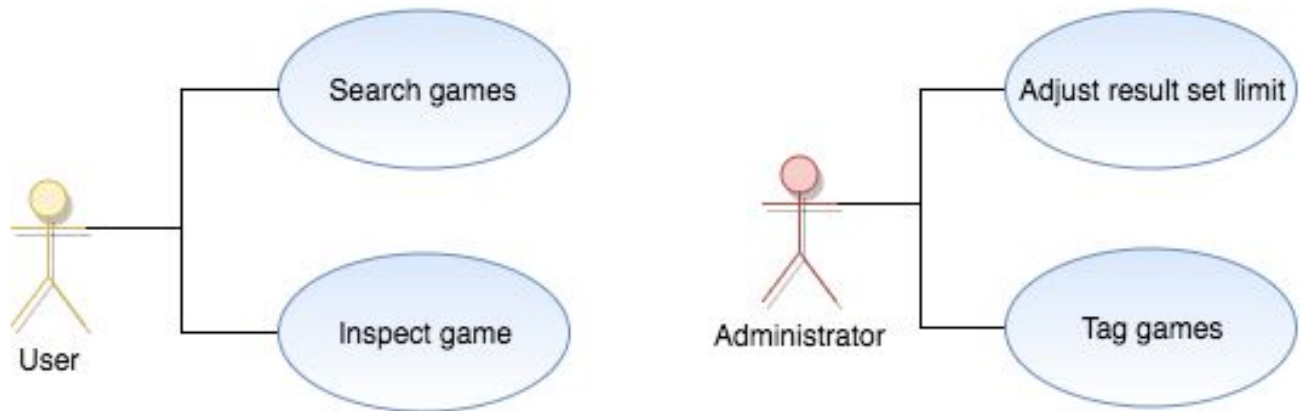
It is assumed that the EGS, Inc. operational staff will perform a security audit on the EGS Online website prior to shipping. If this is not done, EGS Online cannot be made public for the safety of our assets.

## FUNCTIONAL REQUIREMENTS

### USER REQUIREMENTS

Below are use case diagrams describing fundamental workflows for EGS Online from a high-level point of view. It is assumed here that administrators may access all user-available workflows, but not vice-versa. In this SRS, only 6 modules are described.

#### #1 GAME SEARCH/RESULTS



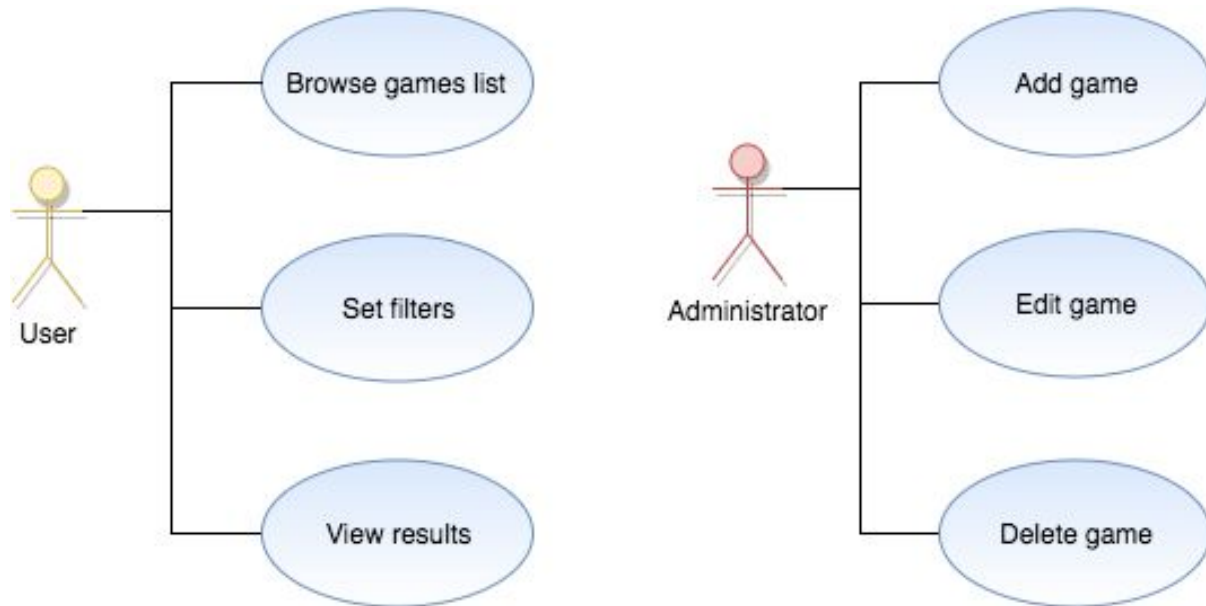
The active user should be able to use the web portal to search for a video game. The search subsystem will allow the user to initiate a search by entering a query then submitting the related form. Upon submission, the user will be able to browse through relevant results.

Administrators can enhance the user's search experience by setting limits per page of result set shown to the user and further by tagging games with keywords that can be quickly matched to a user's search query.

The complete workflow is essentially:

1. Admin tags games existing in the game catalog
2. Admin configures result set page delimiter
3. User submits search query
4. System validates search query
5. System returns results based on tags and the page delimiter

## #2 GAMES CATALOG



The active user should be able to use the web portal to browse a catalog of games as a whole. In this instance, the user is simply presented a list of all games available in the database. The user may limit the output of the list by selecting certain attributes such as name, description, platform, rating, and others. The user may then seek to browse detailed information about the title found.

Administrators can configure the game catalog by adding, editing, and deleting titles.

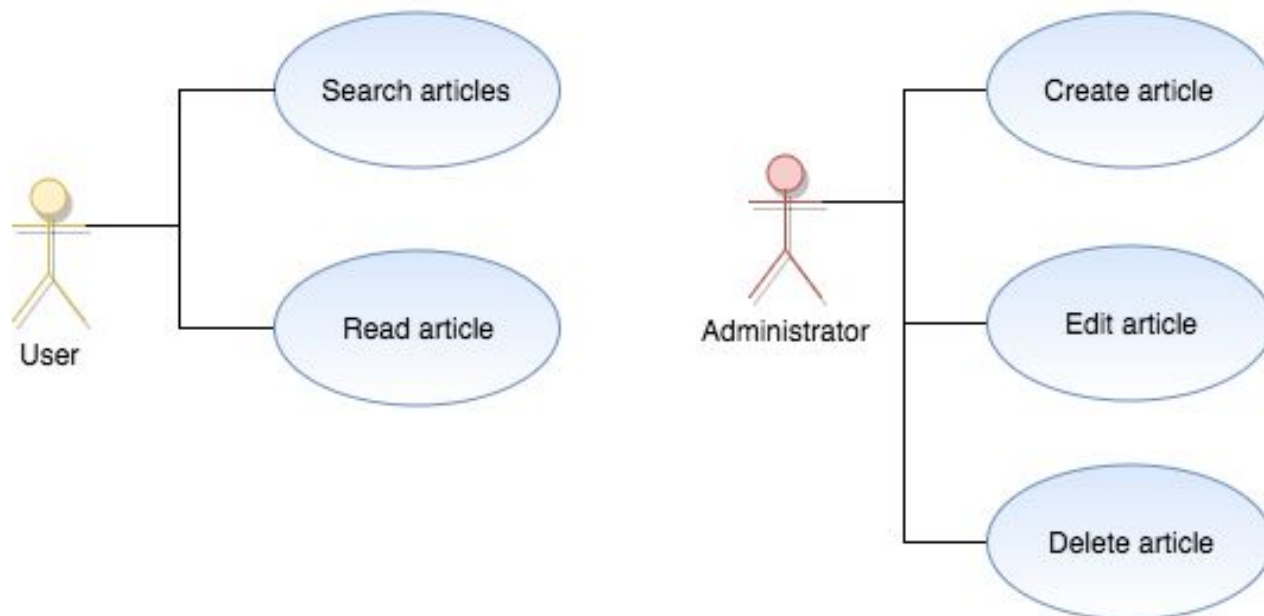
The user-side workflow is as follows:

1. User enters game catalog
2. User browses game catalog and can set filters
3. System validates filter set
4. System returns results
5. User can view details about a specific game

The administrator-side workflow required to seed the user workflow:

1. Administrator adds a new game title to the database
2. Administrator sets specific information ("attributes") related to the game
3. System validates information
4. System saves information to database

## #3 NEWS



The active user should be able to use the web portal to browse a collection of articles as a whole. In this instance, the user is simply presented a list of all articles available in the database. The user may limit the output of the list by selecting certain criteria such as name, description, platform, rating, and others. The user may then choose an article that has been returned to them through their search.

Administrators can configure the article collection by adding, editing, and deleting articles.

The user-side workflow is as follows:

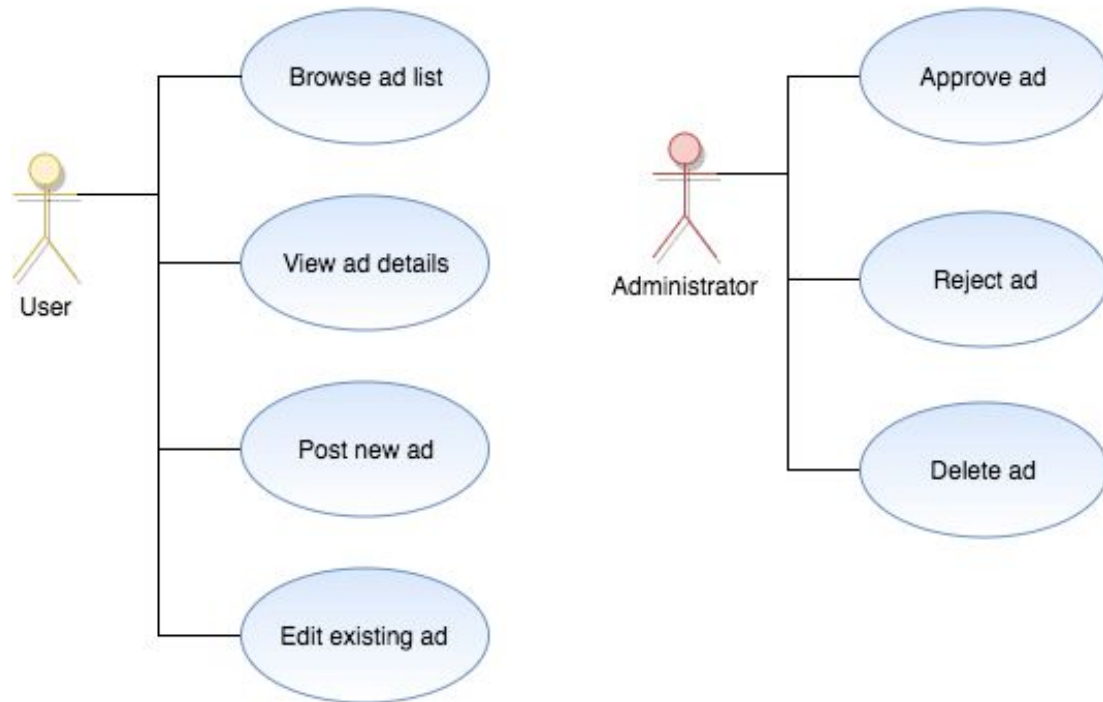
1. User enters article collection
2. User browses article collection and can search via criteria
3. System validates search criteria
4. System returns articles matching criteria
5. User can view returned articles

The administrator-side workflow required to seed the user workflow:

1. Administrator adds a new article to the collection, or edits an existing one
2. Administrator sets specific information ("attributes") related to the article
3. System validates information
4. System saves article to database

An alternative administrator workflow involves deleting articles.

## #7 CLASSIFIED ADS



The active user should be able to use the web portal to browse and contribute to a list of classified ads. Via this subportal, the user may buy or sell video games with the larger area community. Shipping and procurement are responsibilities outside of EGS, Inc. and are within the hands of the buyer and seller.

Users can view all available ads, inspect details about certain ads, post new ads, or edit their own existing ads (i.e. marking it "sold" or adding new pictures). All ads are subject to admin approval upon creation or edits.

Administrators can approve, reject, or outright delete ads.

The user-side workflow is as one of following:

1. Post new ad
2. Edit ad later

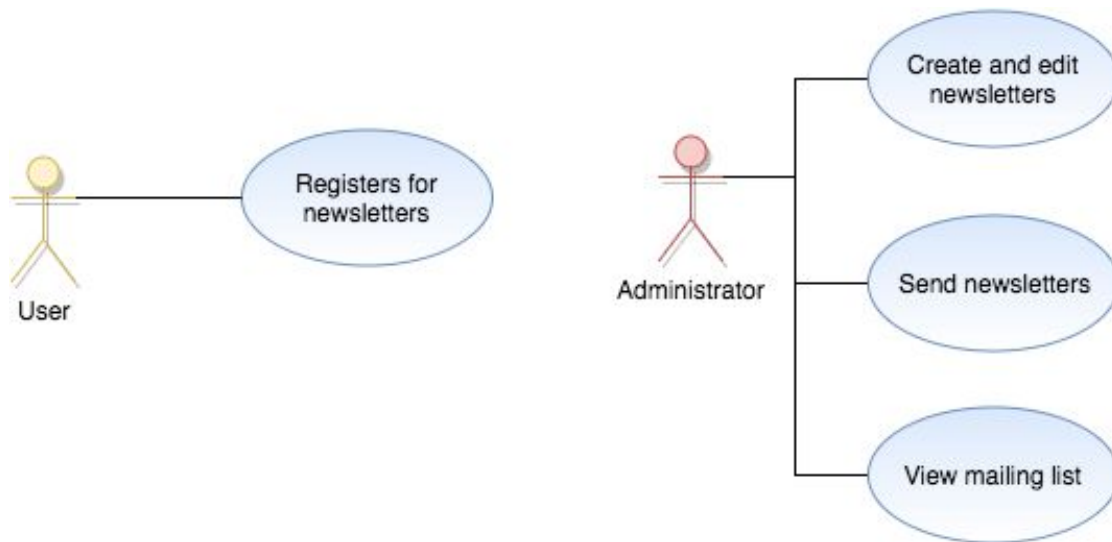
Or,

1. View ad details
2. Reply to ad (outside of web portal, with contact information provided in details)

The administrator-side workflow required to seed the user workflow:

1. Approve or reject ad
2. Delete ad when necessary

## #8 NEWSLETTER

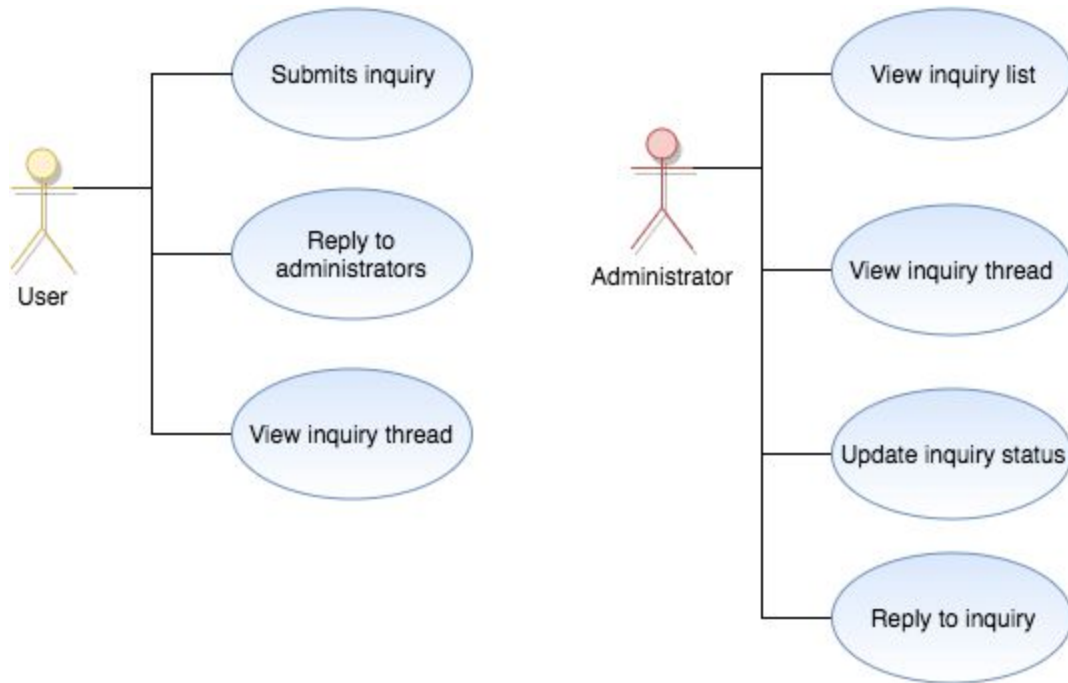


The user will have the option to register for the newsletters that will be provided by the administrator. To register the user must enter their email in the form, which will save their email in the database.

The admin's responsibilities will be to create and edit newsletters. When editing the newsletter the admin must be able to add, modify, and delete, and save the newsletter. The admin must also be able to send out the newsletter to the users that have registered. To do this the administrator needs to be able to view the mailing list.



## #9 SUPPORT



Users can interact with the Support page by the following activity workflow:

1. View inquiry (question/comment) list
2. Open an inquiry thread and post comments to existing questions
3. Make comments to admin posts (seeded via the related admin workflow)

Admins may also contribute to users in this portal by the following activity workflow:

1. View inquiry (question/comment) list
2. Open an inquiry thread and reply to users
3. Set the inquiry status among the states: New, In Progress, Complete, Duplicate, Discarded

Administrators and users alike may repeat their workflows as necessary.

## SYSTEM REQUIREMENTS

Use case specifications are detailed below.

### #1 GAME SEARCH/RESULTS

| ID 1            | Game Search (User perspective)  |
|-----------------|---|
| Description     | Users will be using the search bar in order to look up games  |
| Input           | Name of game title to search for  |
| Output          | Titles found in the game catalog, with respect to admin-specified rowset limit                                  |
| Preconditions   | The tags typed in by the user exist in the database and consist of valid characters                             |
| Post conditions | If results were found in the database, they will be displayed with related links to the game catalog (module 2) |
| Action          | User has to type input that matches a tag in the database.  |

| ID 2            | Game Tag Management (Admin perspective)  |
|-----------------|--|
| Description     | Admins can add or delete tags per game title in the catalog  |
| Input           | Tag or tags per game title   |
| Output          | A "tag" entry associated with a game title in the catalog, or a success operation indicator upon deletion  |
| Preconditions   | The tags typed in by the administrator does not already exist in the database for said game and consists of valid characters (if creating), or the tag exists (if destined for deletion) |
| Post conditions | The associated tags with the game entry in the database will be updated  |
| Action          | Admin has to choose a game to manage tags on, then choose the action (add or delete) with necessary input  |

## #2 GAMES CATALOG

| ID 3            | Game Search (User perspective)  |
|-----------------|---|
| Description     | Users may browse the game catalog to find a specific game as well as view ("inspect") its details               |
| Input           | Sorting parameters (i.e. genre, platform, reviews, rating, price)   |
| Output          | A list of titles found in the game catalog matching the criteria, with an option to view details                |
| Preconditions   | The tags typed in by the user exist in the database and consist of valid characters                             |
| Post conditions | If results were found in the database, they will be displayed with related links to the game catalog (module 2) |
| Action          | User has to type input that matches a tag in the database.  |

| ID 4            | Game Tag Management (Admin perspective)  |
|-----------------|--|
| Description     | Admins can add or delete tags per game title in the catalog  |
| Input           | Tag or tags per game title   |
| Output          | A "tag" entry associated with a game title in the catalog, or a success operation indicator upon deletion  |
| Preconditions   | The tags typed in by the administrator does not already exist in the database for said game and consists of valid characters (if creating), or the tag exists (if destined for deletion) |
| Post conditions | The associated tags with the game entry in the database will be updated  |
| Action          | Admin has to choose a game to manage tags on, then choose the action (add or delete) with necessary input  |

## #3 NEWS

| ID 5            | Article Search (User perspective)  |
|-----------------|--|
| Description     | Users may browse to and view all news articles that have been made available to them. They can also search for articles based on an article's tag, which must be entered as search criteria to return the correct article. |
| Input           | <ul style="list-style-type: none"> <li>Filter parameters (i.e. genre, platform, reviews, rating, price).</li> </ul>  |
| Output          | Articles matching inputted search criteria will be returned to the user if the criteria is valid.  |
| Preconditions   | The user's inputted search criteria must be valid and must produce a hit on an article stored in the underlying news article database.   |
| Post Conditions | If successful, the client can browse to any article that was returned after their search.  |
| Action          | Must input valid search criteria to return an article for viewing.   |

| ID 6            | Article Creation and Modification (Admin perspective)   |
|-----------------|---|
| Description     | Administrators can add, modify, or delete news articles from and to the home-page and News section. They can also add titles, descriptions, and tags that allow users to search and filter specific news articles based on specified search criteria. |
| Input           | <ul style="list-style-type: none"> <li>Article Location (Home page or News section)</li> <li>Article Title</li> <li>Article Description</li> <li>Article Source</li> <li>Article Tags</li> </ul>  |
| Output          | The edited or created article will be added to the database while the removed article will be deleted from the database.  |
| Preconditions   | Admins have created an article and added it to the proper database.   |
| Post conditions | New changes will be added to the database.  |
| Action          | Admin must either select an existing article and edit it or create a completely new article. Tags must be added in either case to make the articles discoverable.   |

## #7 CLASSIFIED ADS

| ID 7            | Classified Ads (User Perspective)   |
|-----------------|---|
| Description     | Users may browse the classified ads section to find products that interest them, then view details about a specific ad. Likewise, users may post new ads with a description of their product and their contact information for any interested parties. They may also edit their own existing ads. |
| Input           | <ul style="list-style-type: none"> <li>• Ad title (if creating or editing)</li> <li>• Ad post body (if creating or editing)</li> <li>• Contact information (if creating or editing)</li> </ul>  |
| Output          | The created or edited ad will be submitted to the database. The selected ad while browsing will be shown to the user.   |
| Preconditions   | The user enters valid input for creation or editing (at least one character for title, body, and contact info).<br>The administrator has approved ads for display.  |
| Post Conditions | The ad is saved to the database if creating or editing.<br>The approved ads are displayed to the user if browsing.  |
| Action          | User may create a new add, or select an existing one to edit. Otherwise, user may simply browse approved ads and select one for details.  |

| ID 8            | Classified Ads (Admin Perspective)   |
|-----------------|--|
| Description     | Administrators may approve, reject, or delete posted ads.  |
| Input           | <ul style="list-style-type: none"> <li>• Ad to alter state of</li> <li>• Target state (approve/reject/delete)</li> </ul> |
| Output          | The database will be modified appropriately based on the selected ad and state.  |
| Preconditions   | An ad exists in the database for altering.   |
| Post Conditions | The ad's state is updated in the database.   |
| Action          | Administrator must select an ad then operate on it.  |

## #8 NEWSLETTER

| ID 9            | Newsletter (User Perspective)   |
|-----------------|---|
| Description     | The users will be able to register for a newsletter that will be edited and sent out through email by the administrators. |
| Input           | Email address into newsletter registration form.  |
| Output          | If email address is valid then the user will receive newsletters.   |
| Preconditions   | If user inputs incorrect email then they will be told that the email does not match, and need to retype it.               |
| Post Conditions | If the email used to register is valid, then the users will be able to receive the newsletters.                           |
| Action          | Have to type valid email into registration form to receive a newsletter.  |

| ID 10           | Newsletter (Administrator Perspective)   |
|-----------------|--|
| Description     | The administrator will be able to create and edit the newsletter, send out the newsletter, and view mailing list.                            |
| Input           | The admin modifies the content of the newsletter.  |
| Output          | The admin sends out the newsletter to subscribers.   |
| Preconditions   | The admin has to have information entered in the newsletter in order to send it out to the subscribers or else the system will not allow it. |
| Post Conditions | Once admin fills newsletter with information then they can send out the newsletter to the subscribers.                                       |
| Action          | Has to type in newsletter in order to send it out to the subscribers.  |

## #9 SUPPORT

| ID 11           | Seeking Support (User perspective)  |
|-----------------|---|
| Description     | Userss will be able to post questions and comments to the Support section while receiving notifications whenever their questions have been answered.                      |
| Input           | <ul style="list-style-type: none"> <li>• Questions</li> <li>• Comments</li> </ul>   |
| Output          | Questions and comments will be displayed on the support section.  |
| Preconditions   | Users may submit questions when the Support section is not under maintenance. Comments can be submitted to a question that does not have a Duplicate or Discarded status. |
| Post Conditions | Valid questions and comments will be submitted and displayed on the Support page.   |
| Action          | Submit a question to the Support section or add a comment to an existing question or answer.  |

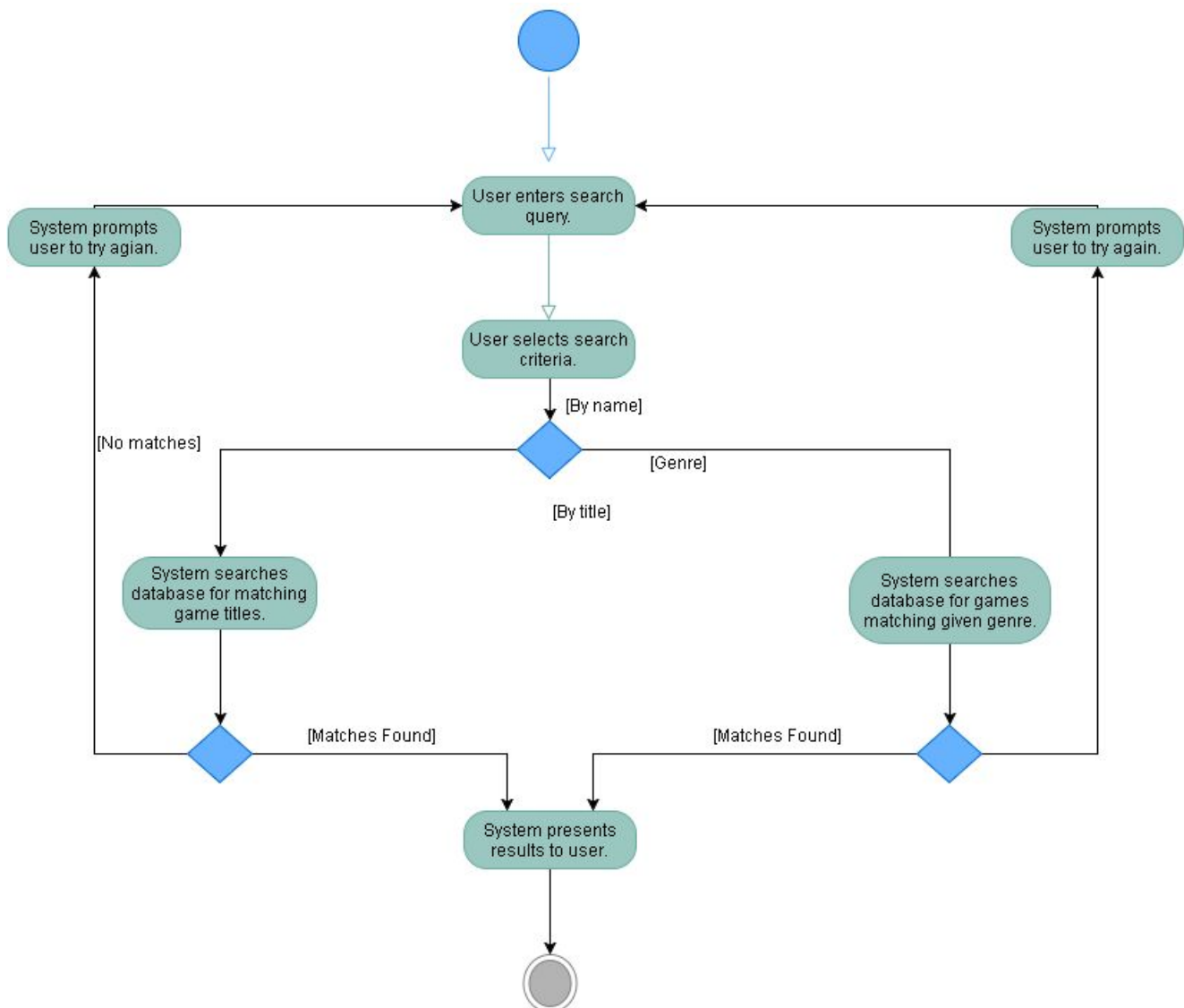
| ID 12           | Giving Support (Admin perspective)   |
|-----------------|--|
| Description     | Administrators will be able to answer questions posted by clients, have the capability to view the poster's username, and be able to update the status of a specific question. |
| Input           | <ul style="list-style-type: none"> <li>• Answers</li> <li>• Statuses</li> <li>• Notifications</li> </ul>   |
| Output          | Answers will be submitted to a given question after which the status of that question will be updated. A notification will be sent out to users to alert them to the answer.   |
| Preconditions   | The Support section must contain a question.   |
| Post Conditions | Appropriate answers will accompany appropriate questions.  |
| Action          | Submit an answer to and update the status of a given question.   |

## SYSTEM MODELS

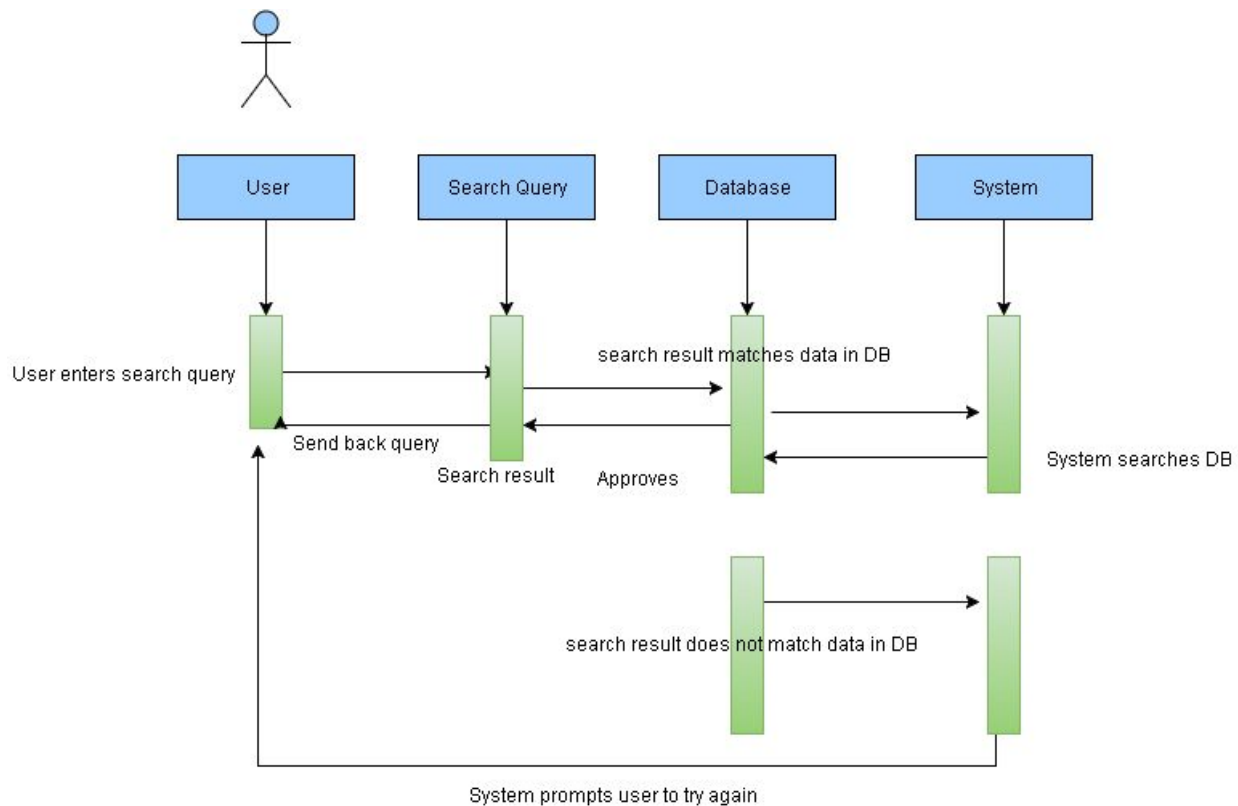
### #1 GAME SEARCH/RESULTS

#### USE CASE ID 1

The following flowchart describes how the user interacts with the search bar. First, the user will enter the search query. The user will be select a specific search criterion. This criterion could be a genre or game title. After the user submits the form and a match is found, the system presents the results to the user. If there are no matches, the system prompts the user to try again.





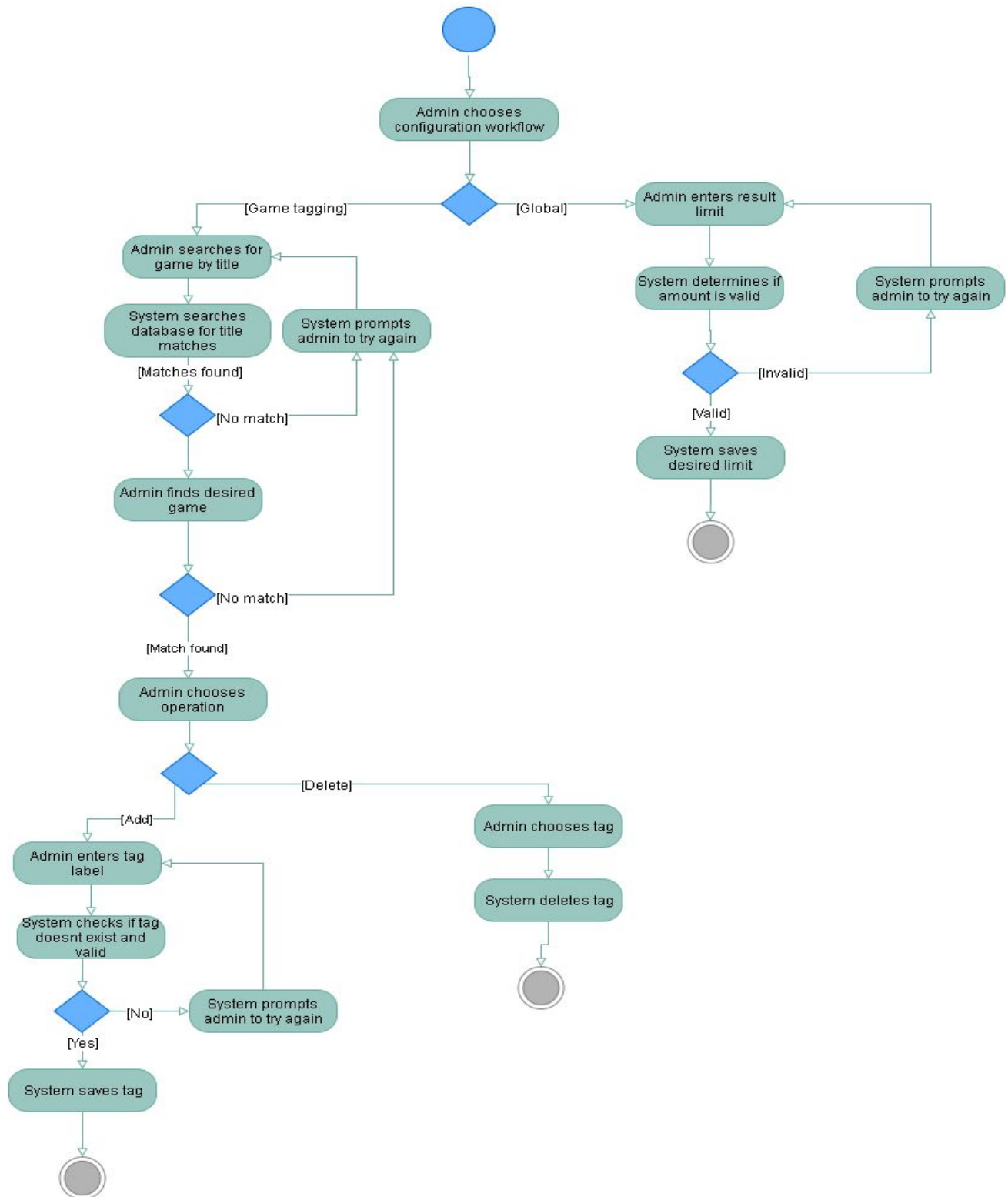


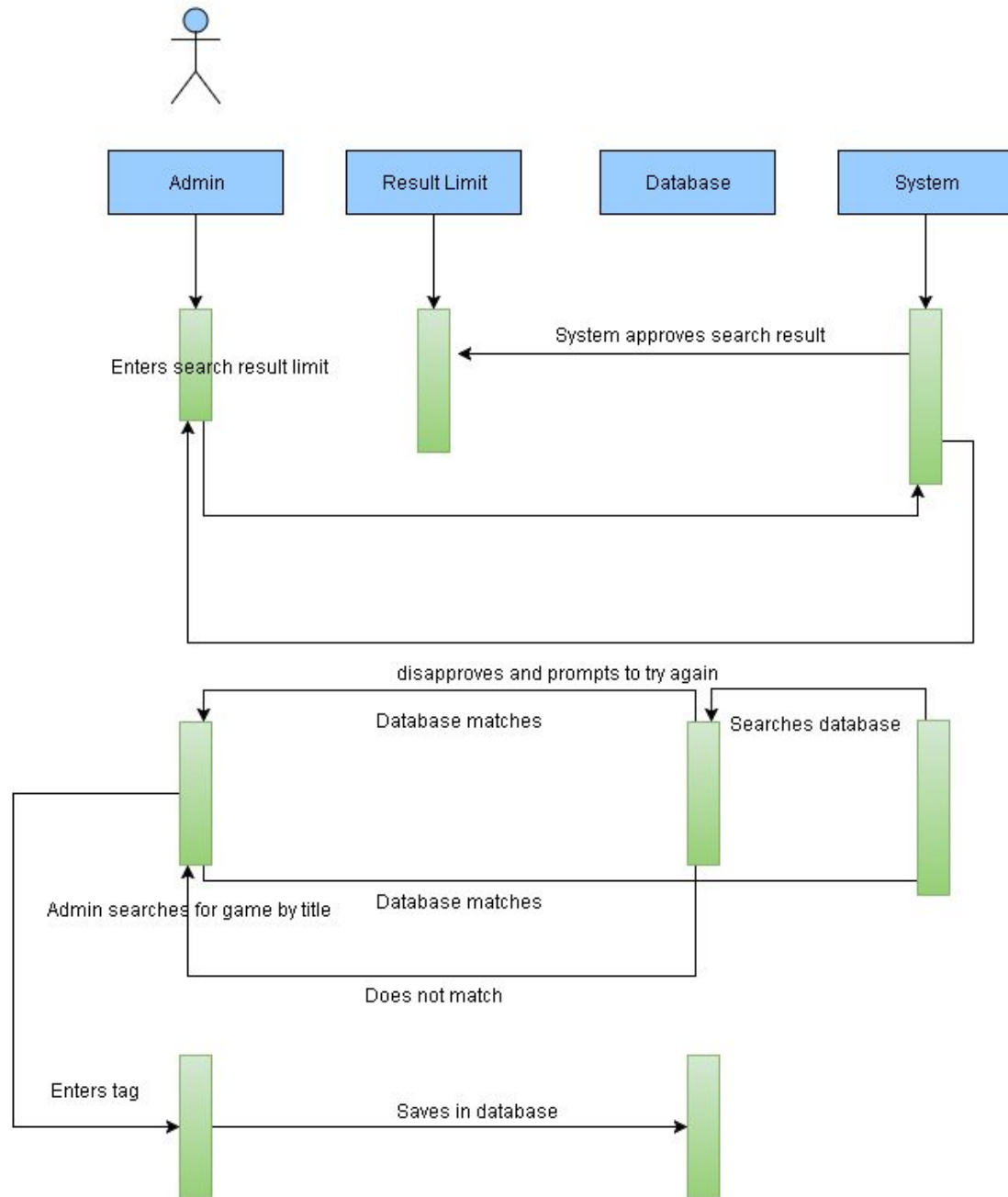
## USE CASE ID 2

The diagrams below portray the job of the administrator. The admin can follow a similar path as the user by searching for a game, but primarily utilizes a management workflow. This could be adding or editing game tags, or editing the amount of results to appear on a search.

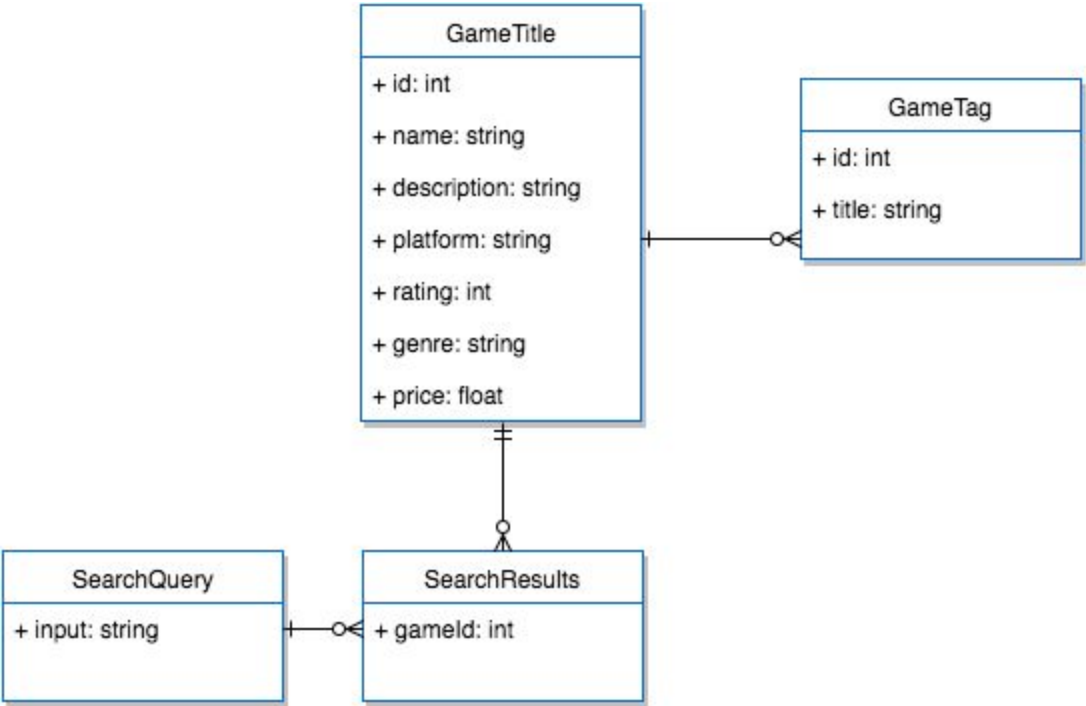
If the admin chooses to edit the gaming tags, the admin will search using game titles. Afterwards, the system checks for matches. If there is a match, the admin selects the desired game. The admin can choose to add or delete a tag. If a tag already exists, the admin cannot recreate it. Conversely, if the tag exists, the admin can delete it.

If the administrator chooses to edit the results setting, the system will determine if the amount is valid. If it is valid the system saves the desired limit and it finishes. But if it is invalid then the system prompts the admin to type the proper value again.





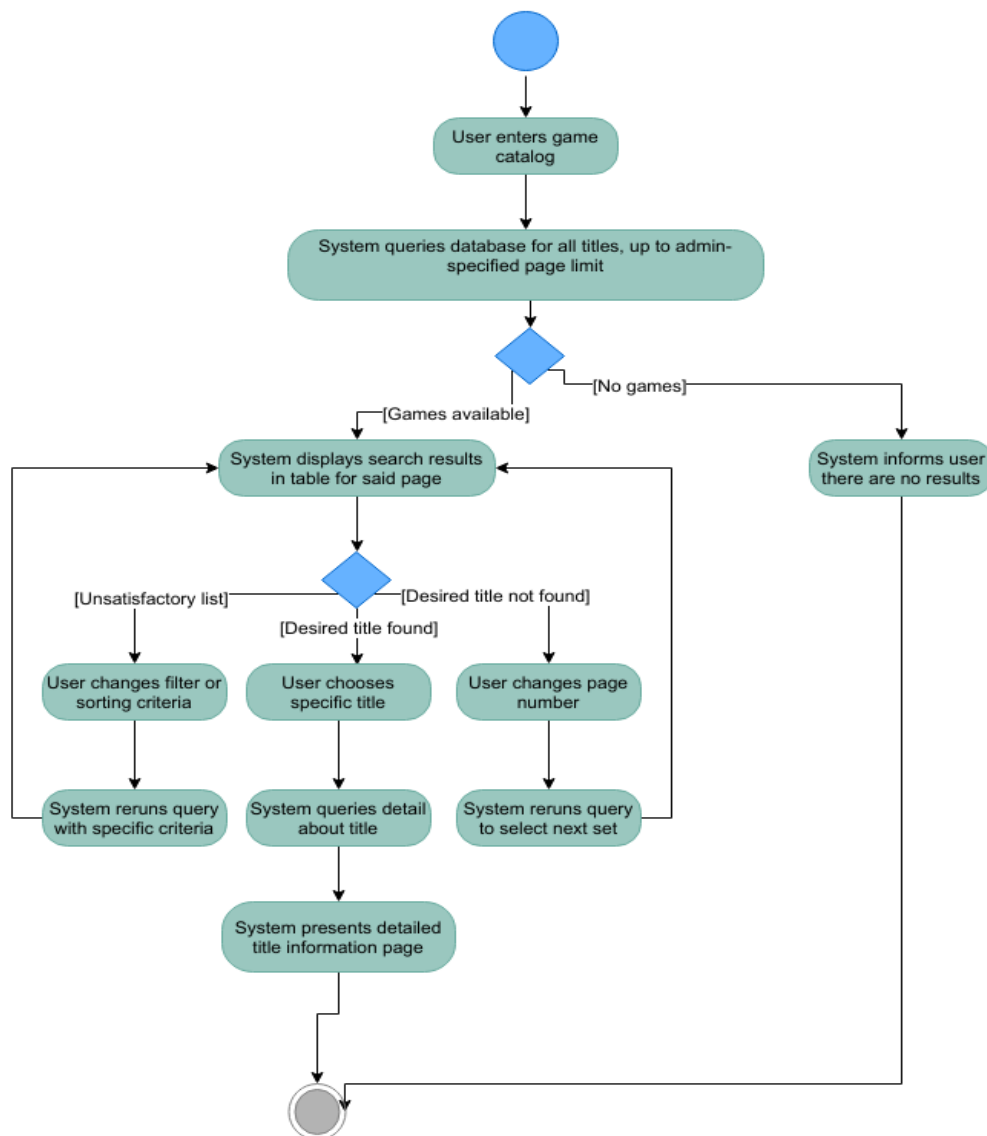
CLASS DIAGRAMS

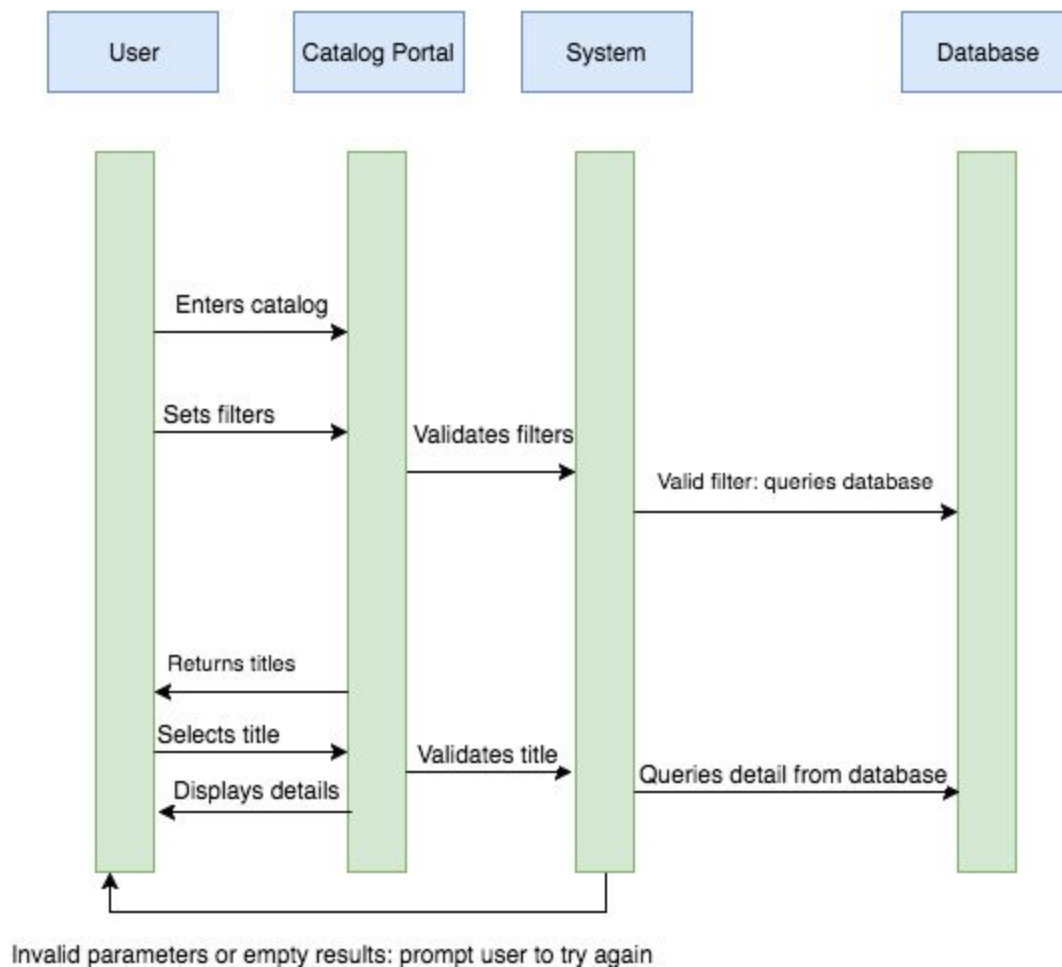


## #2 GAMES CATALOG

## USE CASE ID 3

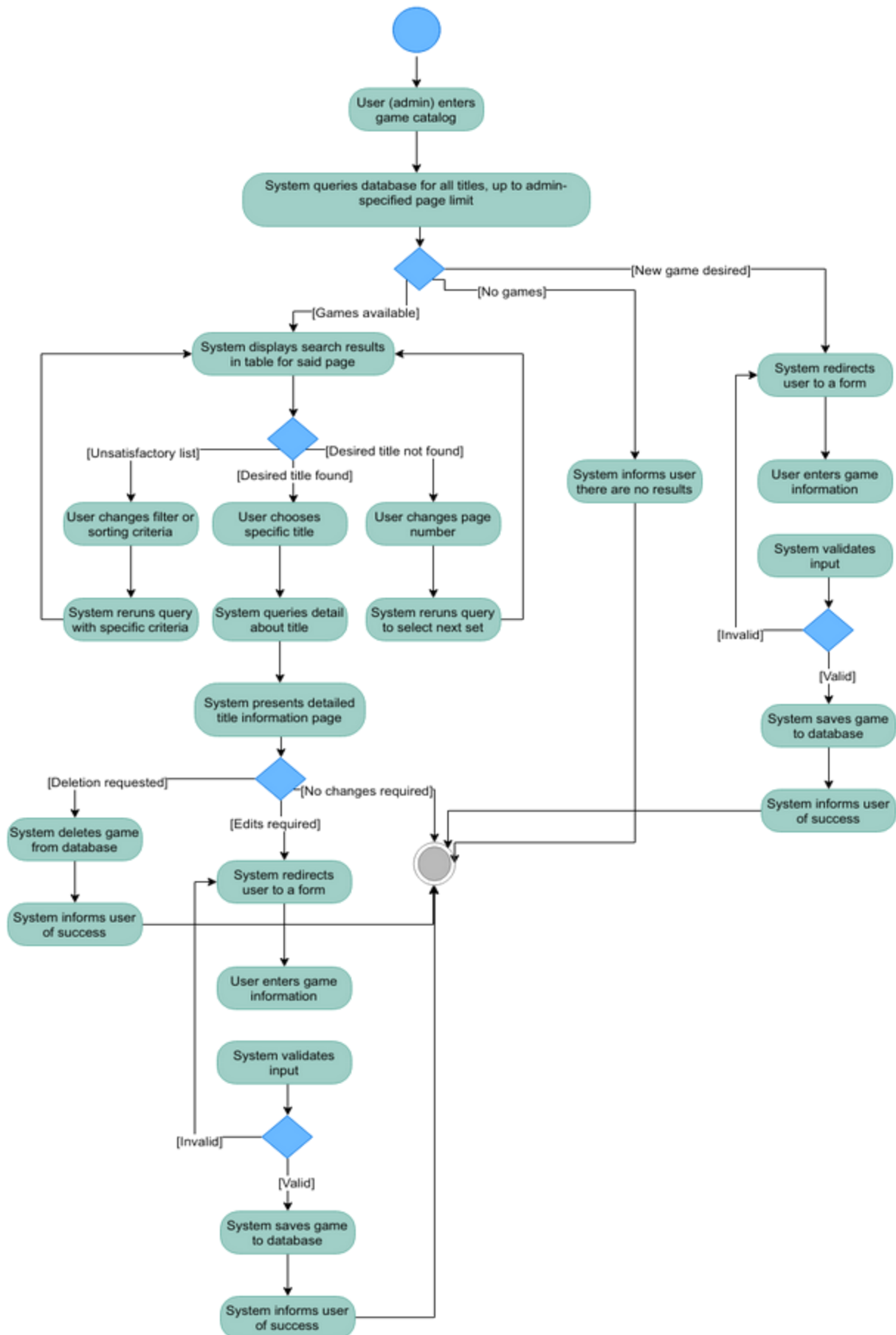
The following diagrams sequence the workflow from the perspective of a user. In essence, a user will begin by entering the game catalog section and be presented with the first page of the data set of all games, based on an admin-specified per-page result limit. If no games are found, the user is informed of this. Otherwise, the user has some options. They may find the game they like, at which point they may elect to view all details about the game. If the user does not find a game they are after, they can change the page number until they do (forward or backward). The user may also choose to readjust the filtering or sorting of the catalog based on specific parameters (such as genre or platform).

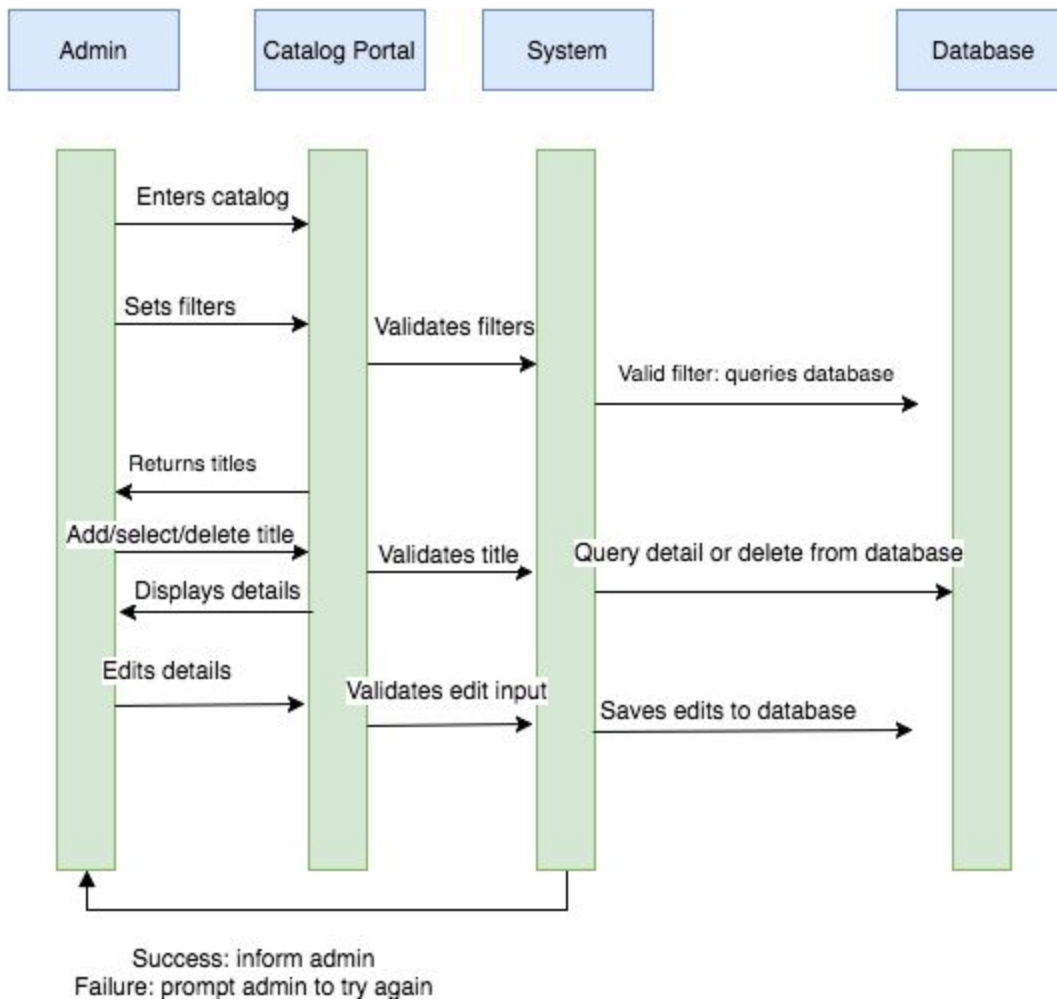




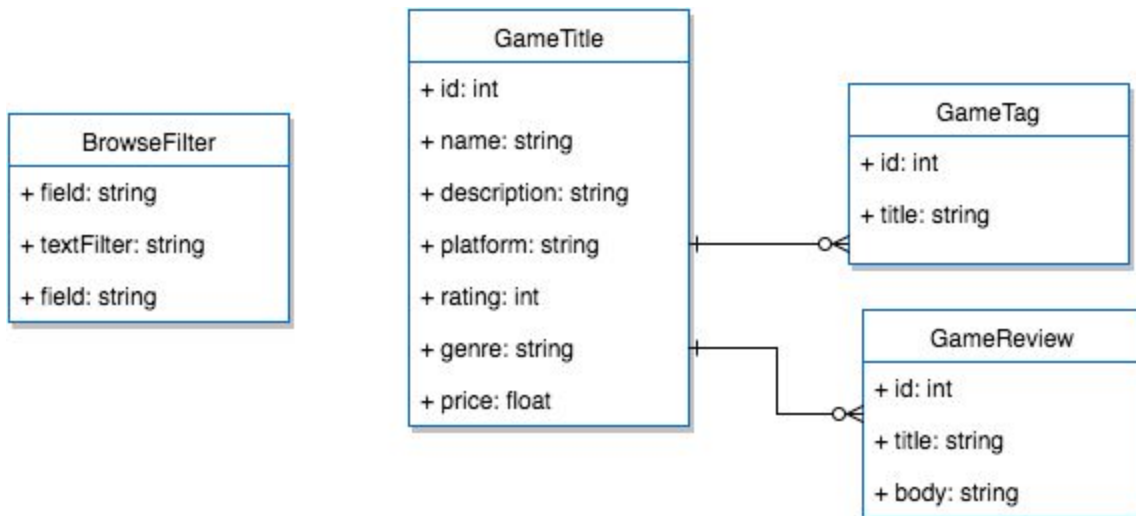
#### USE CASE ID 4

The following diagram showcases a very similar workflow from the perspective of an administrator. The administrator has added ability to add, edit, or delete games. If the administrator decides to add or edit a game, they are presented with a form sheet of a game entity's available fields. If they request to save any changes, the system must validate them before submitting to the database. Alternatively, the administrator can delete a game without any validation.





## CLASS DIAGRAMS

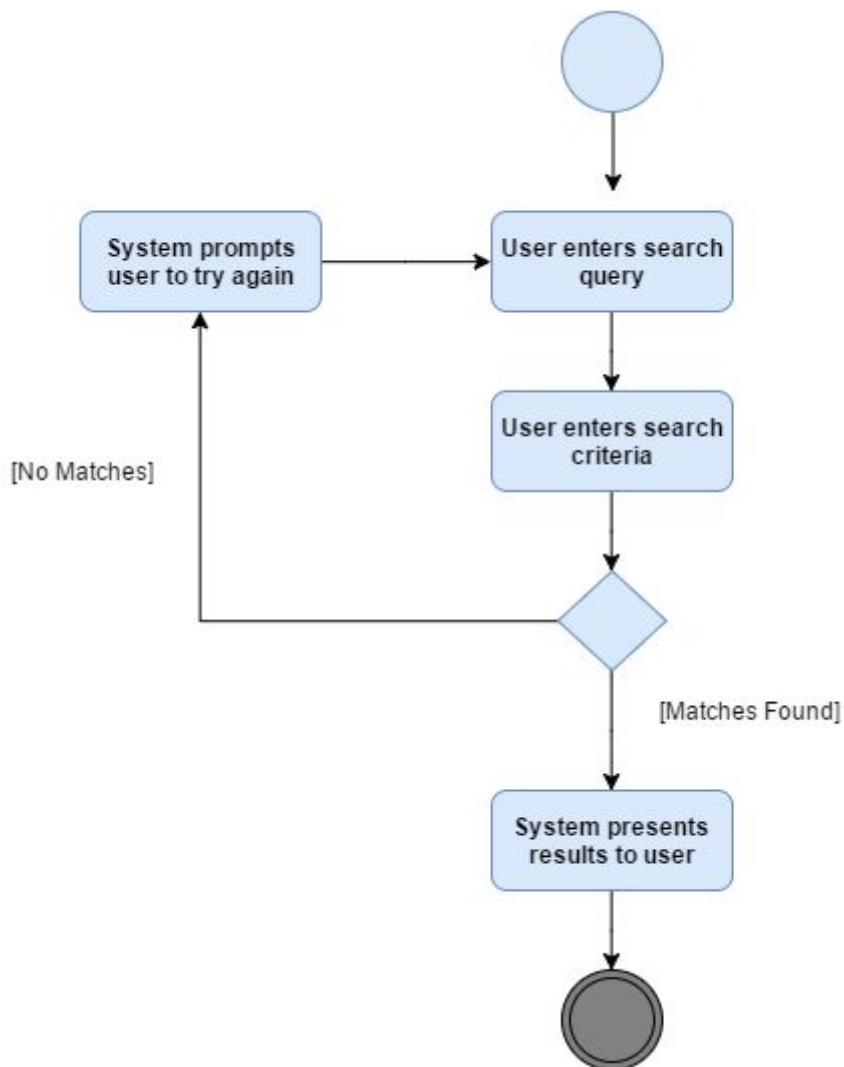


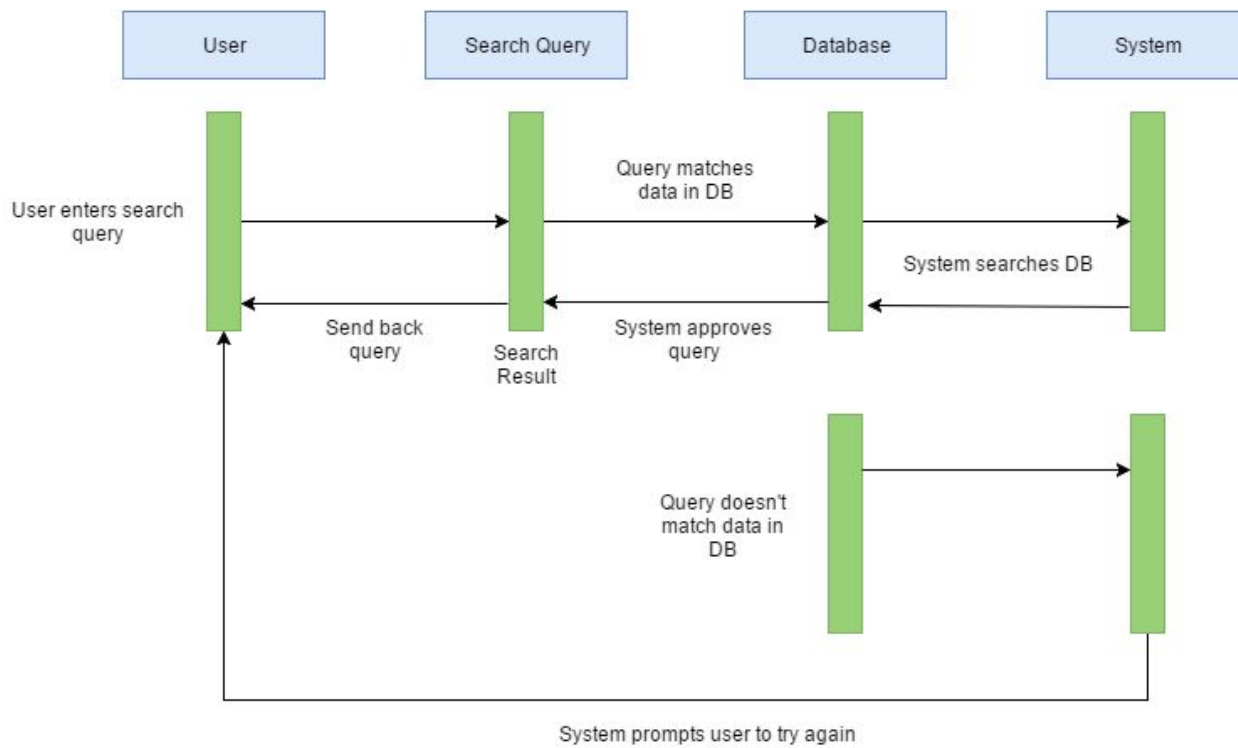


## #3 NEWS

## USE CASE ID 5

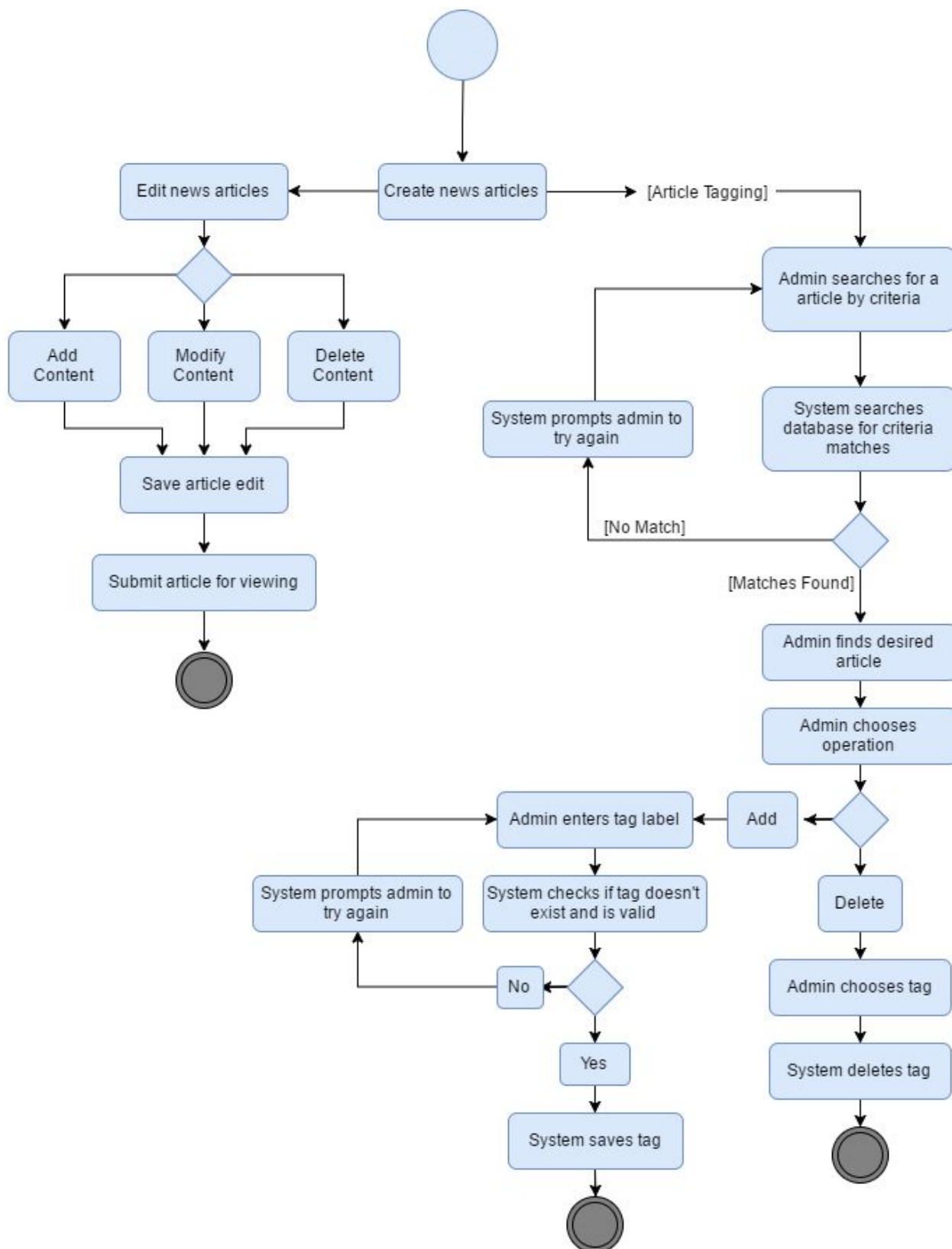
The following diagrams illustrate the processes by which the user will perform searches within the News section. First, the user must enter the search query and then enter the criteria for the specific types of news articles they would like to view. If the entered criteria has a hit, the articles matching the criteria will be returned for view by the user. The user may select an article to read it. The user will be prompted to perform the search again upon failure to locate any articles matching the entered search criteria.





#### USE CASE ID 6

The following diagrams illustrate the actions that an administrator will take to create, edit, and tag articles within the News section. Articles are tagged with words that, when used as search criteria by a user, return them for viewing.

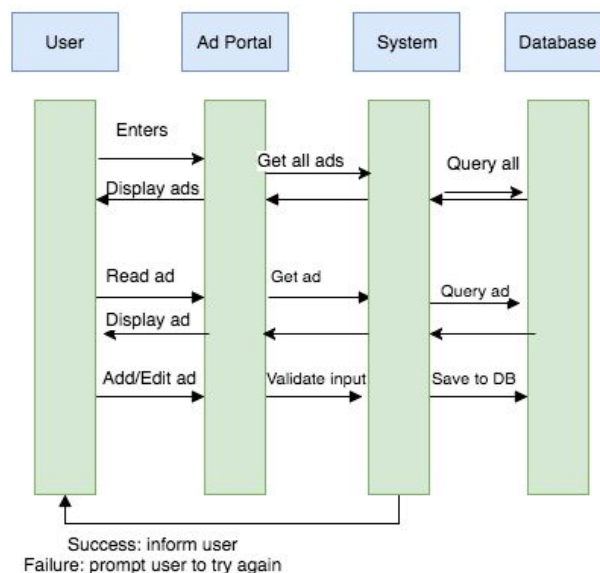
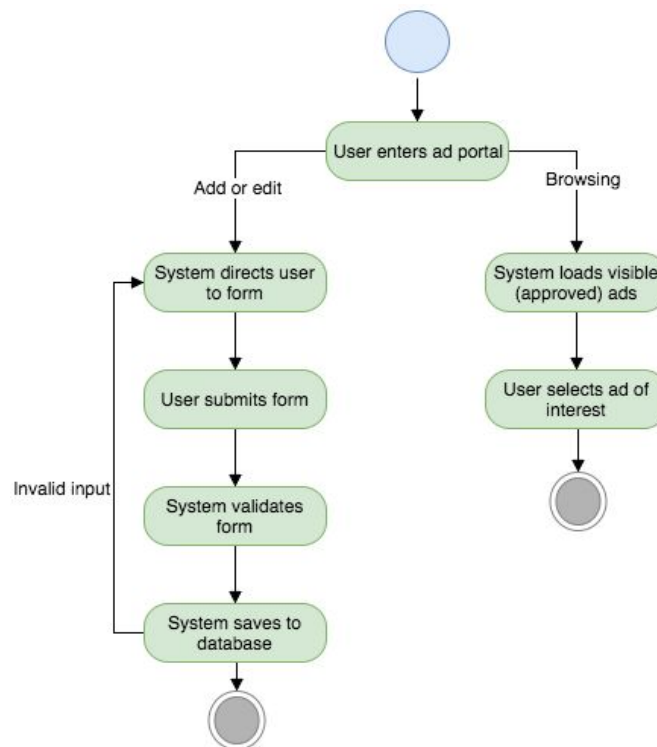




## #7 CLASSIFIED ADS

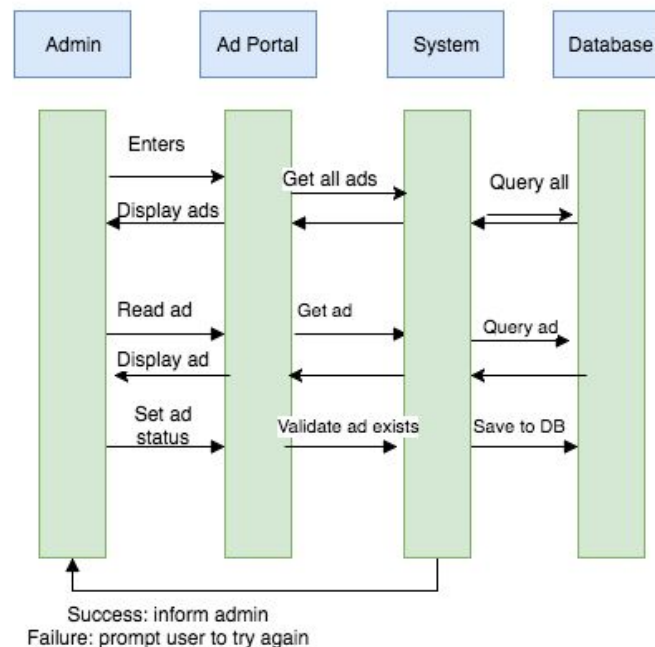
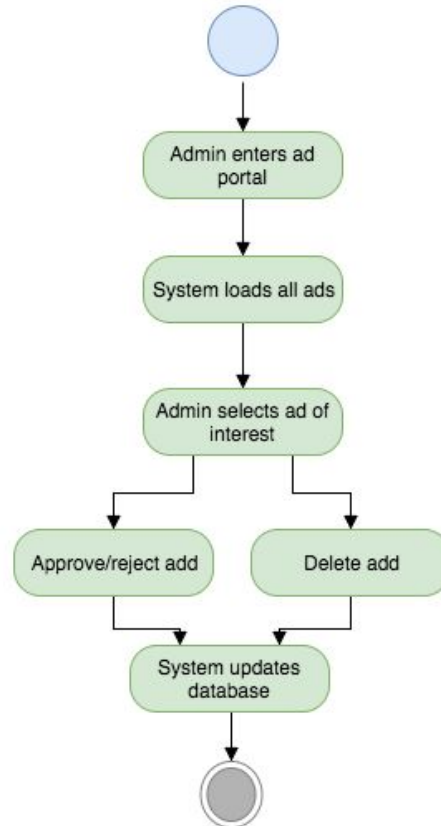
## USE CASE ID 7

The following diagrams showcase how the user will interact with the classified ads section of EGS Online. Users may view administrator-approved ads to follow up with them outside of the system. Alternatively they may create ads for public display within the system. They may later edit their own ads.

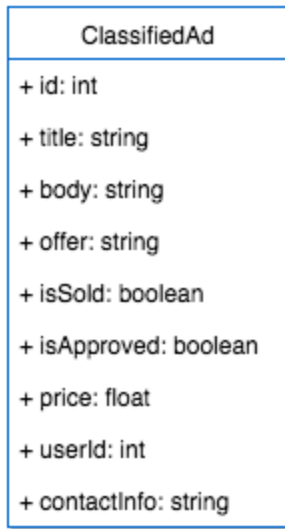


### USE CASE ID 8

The following diagrams showcase how the administrator will interact with the classified ads section of EGS Online. Administrators may view the ads list, akin to the user, but with the added functionality of being able to approve, reject, or delete ads.



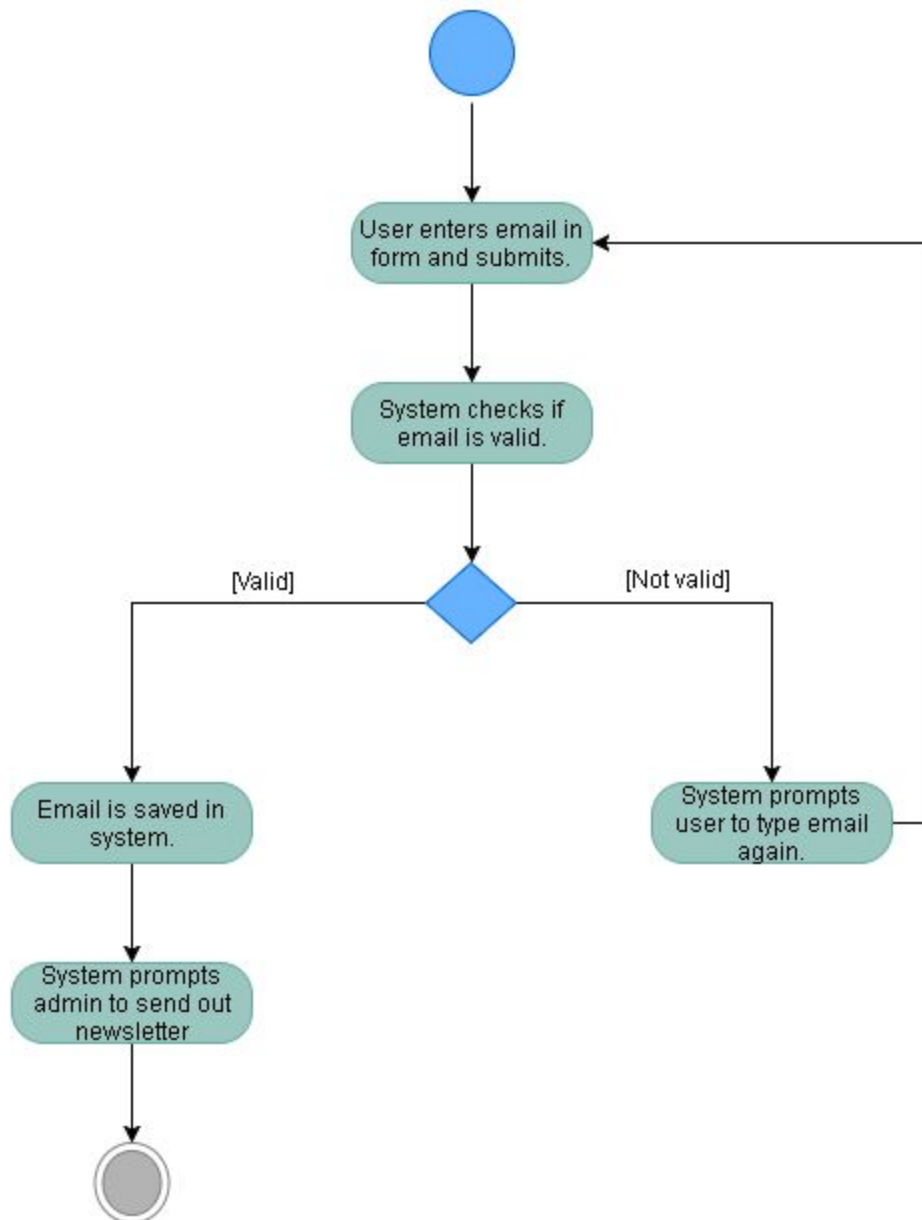
## CLASS DIAGRAMS



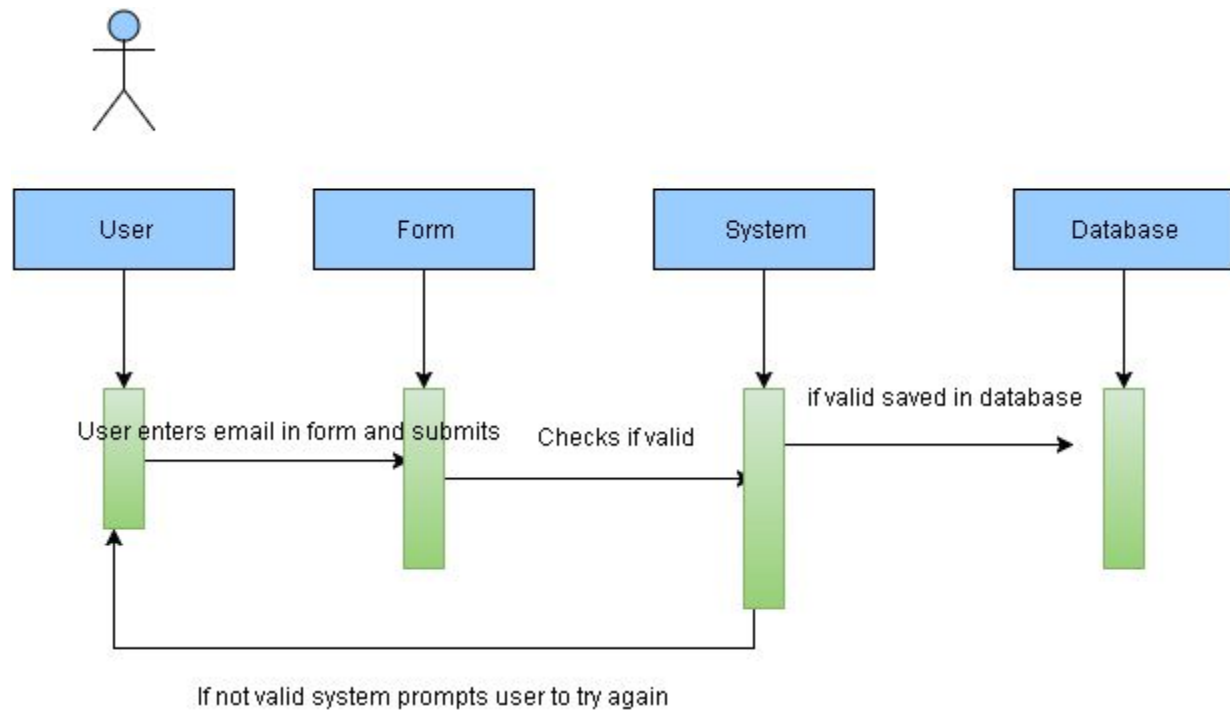
## #8 NEWSLETTER

## USE CASE ID 9

In the diagrams below, we see the user will be entering their email address in the form which will be submitted to the system. Then the system will check if the email is valid or invalid. If it is valid it is saved in the system and appears to the admin. After of which the admin can send out the newsletter to the email. If the email is invalid then the system will prompt the user to type in a valid email.

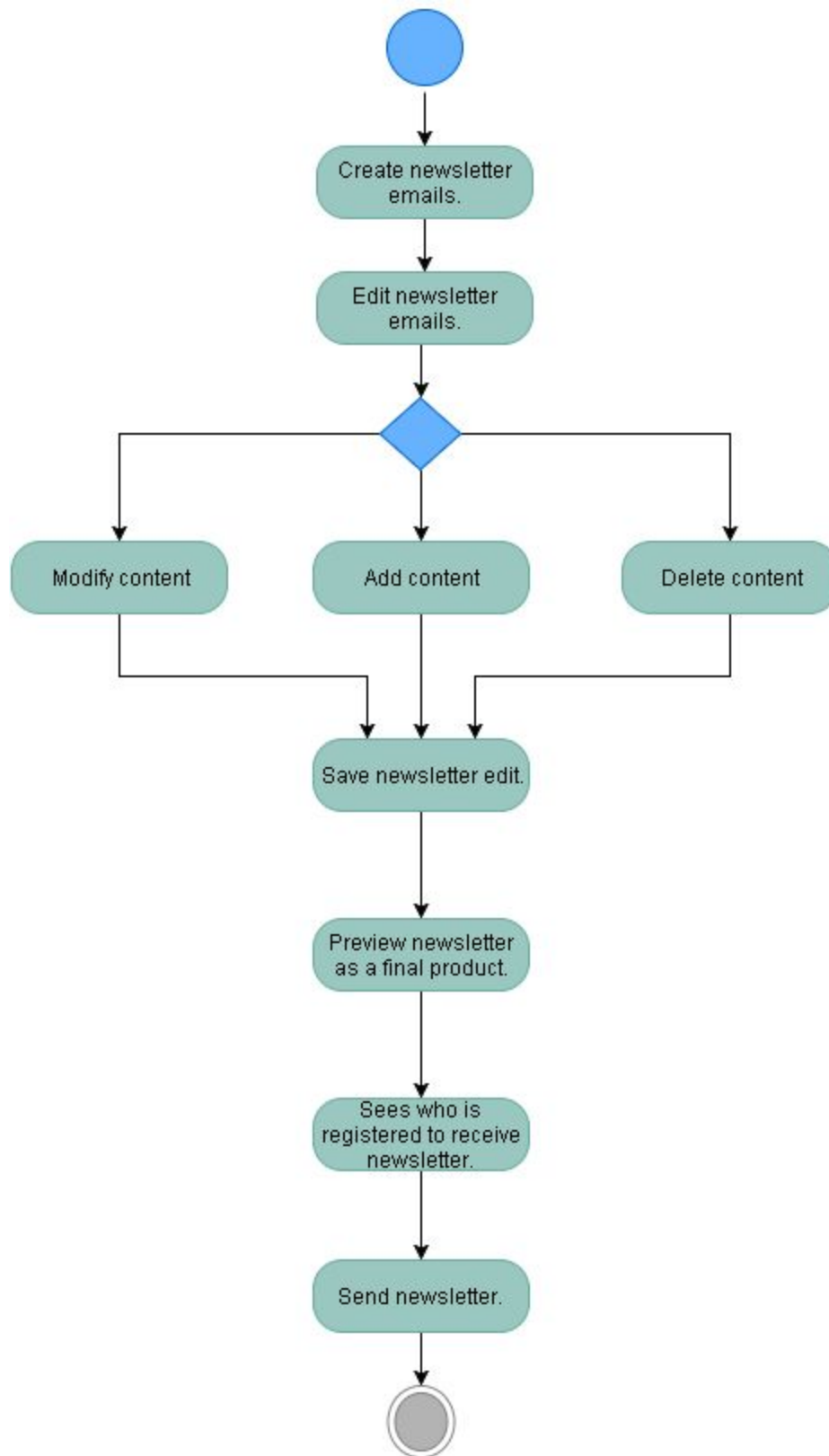


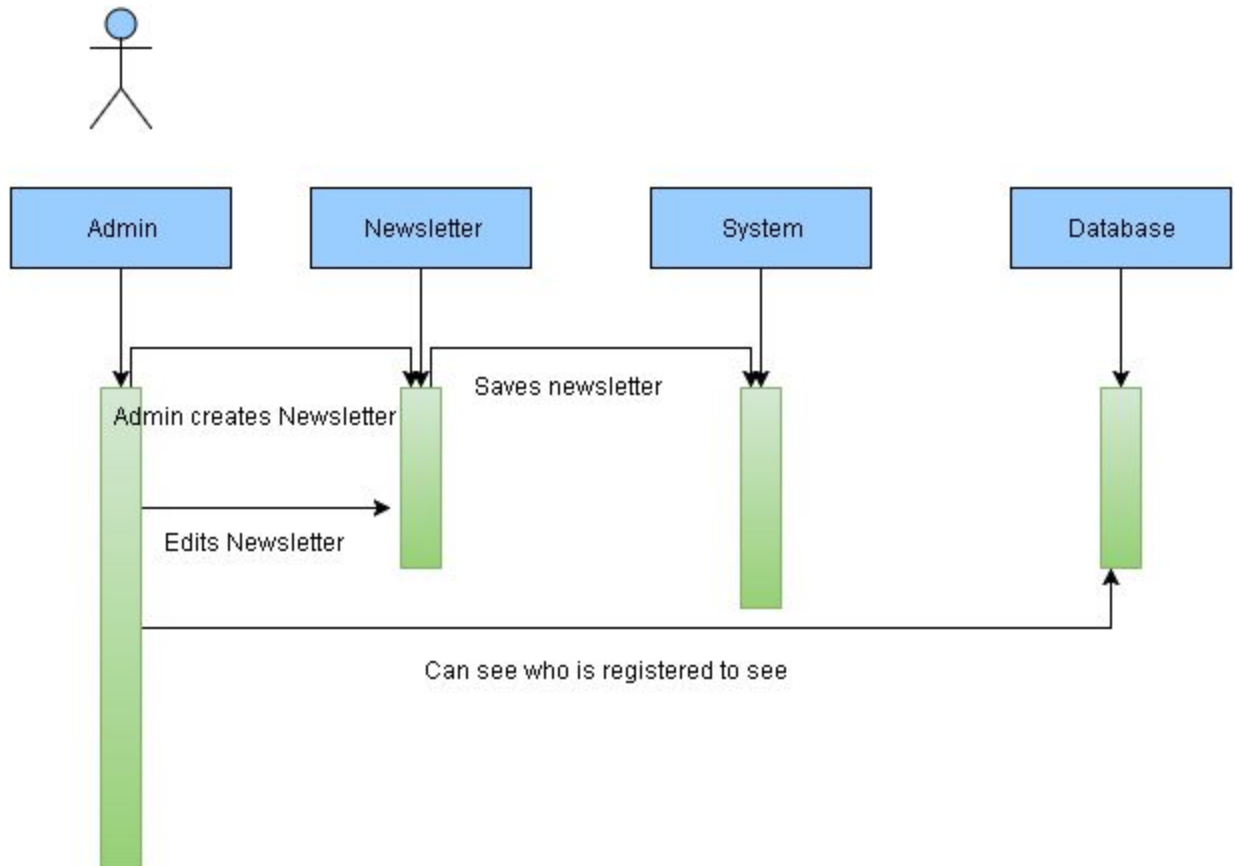




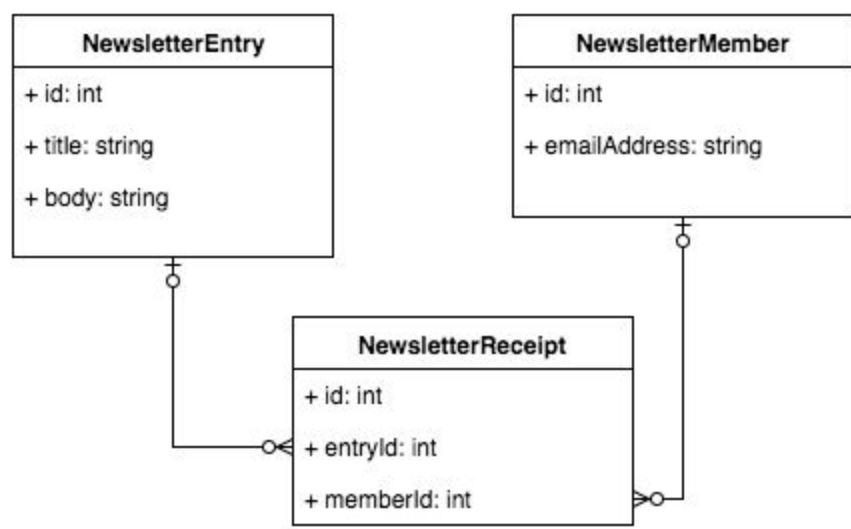
#### USE CASE ID 10

The diagrams below shows how the administrator can work with the newsletter. The admin can create newsletter emails, and edit them. When editing them the admin can add, delete, or modify the newsletter. Once that is done the admin saves it and can preview it as a final product. The admin then can see who is registered to receive the newsletter and if required can select specific people. The admin then sends out the newsletter.





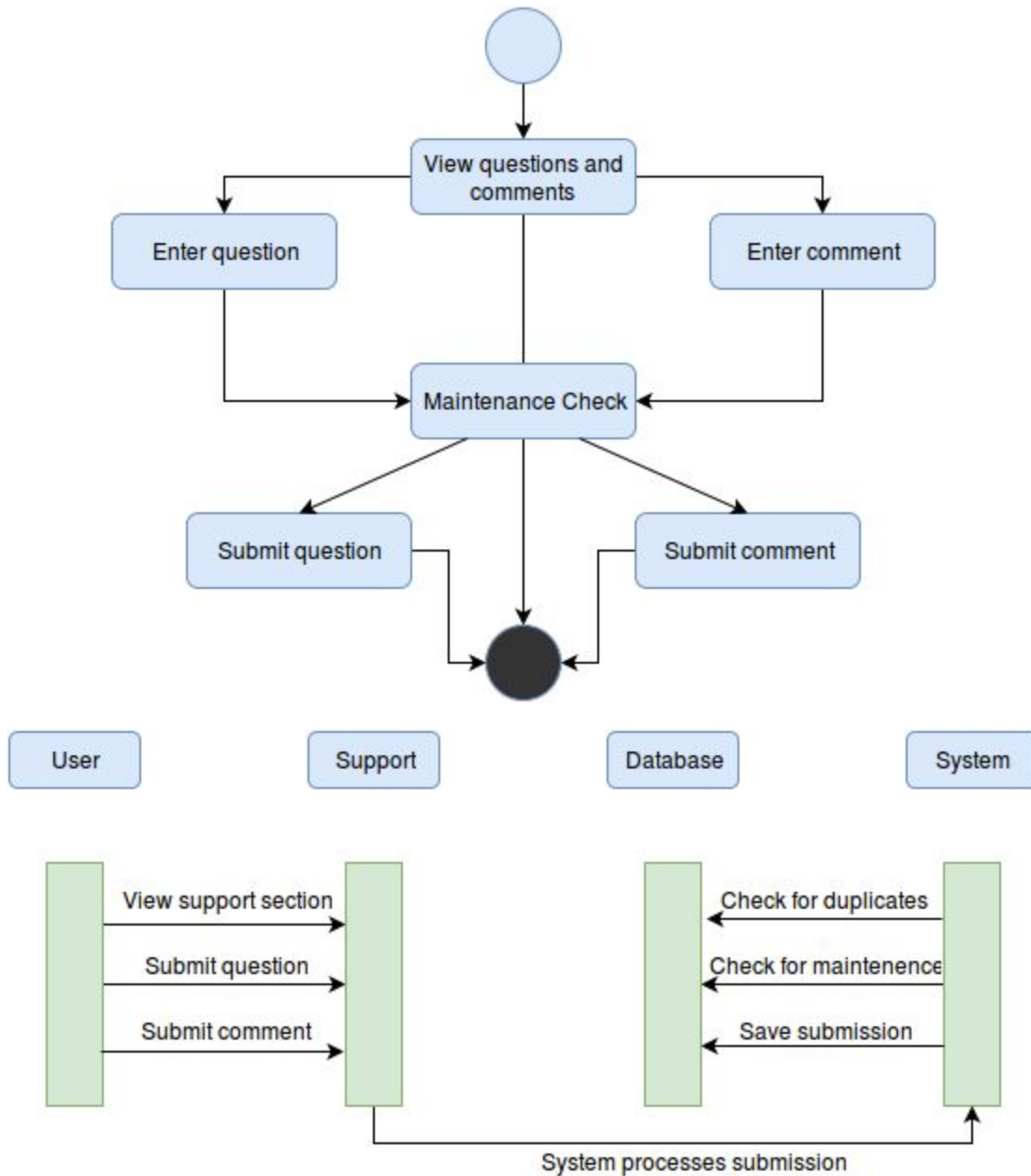
CLASS DIAGRAMS



## #9 SUPPORT

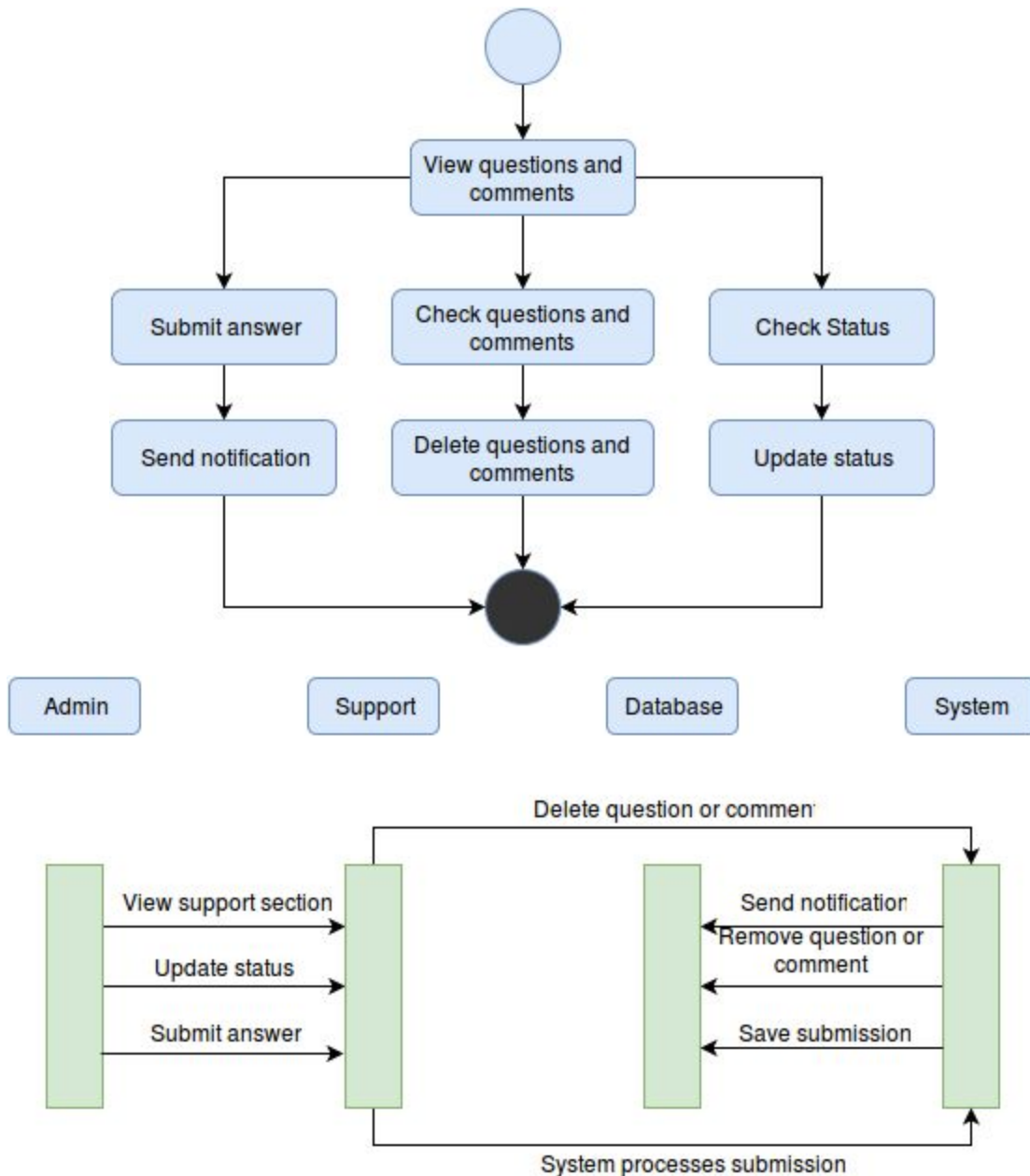
## USE CASE ID 11

The following diagram flowchart illustrates the actions that a user will take to view and submit questions and comments to the Support section. Questions will be tagged with update statuses that are viewable by the user.

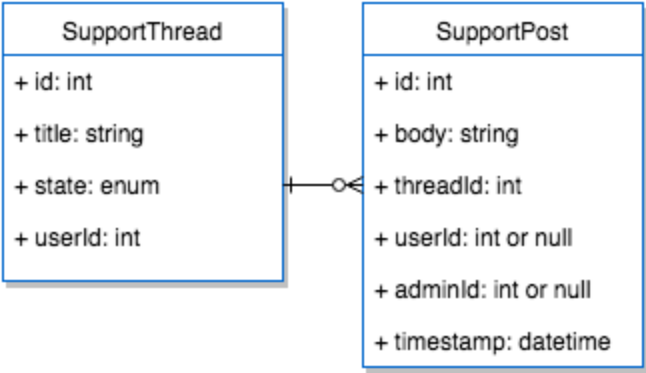


## USE CASE ID 12

The following flowchart illustrates the actions that an administrator will take to view and evaluate questions and comments. Administrators will have the ability to submit answers to questions, which will be accompanied by notifications that will alert the user to a submitted answer. Administrators will update the statuses of questions to notify users of their progress in providing an answer.



CLASS DIAGRAMS



## NON-FUNCTIONAL REQUIREMENTS

### RELIABILITY

At the time of delivery, the software system shall have been assessed through team-validated quality assurance protocols for maximum reliability. Although not critical to EGS infrastructure, EGS Online needs to have high uptime requirements to ensure customer satisfaction. Factors that shall be considered for the QA required include:

- Scale testing (determining maximum amount of operations per second)
- Smoke testing (ensuring that basic operations on live system operate correctly)

When proper scale quantities are discovered, bottlenecks shall be resolved where appropriate. Furthermore, EGS Online's cloud infrastructure should be able to respond appropriately to the needs of vertical or horizontal scaling. Availability of virtual resources should be considered with our cloud hosting provider.

### AVAILABILITY

The website and database will be running 99.9% of the time. In case of extreme situations that it does go down, we will have a copy of the most recent updated version of our website up on the cloud. This copy will run on a separate server and will redirect the website to the clone website.

### SECURITY

In the modern digital era, security considerations should be considered high priority. As such, a requirement of EGS Online is a "no compromise" policy on security. This includes the following minimal requirements:

- Industry-grade AAA as a baseline (see definition)
- Activity logs for all actions
- Mandatory SSL encryption on entire domain
- PCI compliant payment systems if considered in the future
- bCrypt or greater password encryption, with salting

EGS Online components shall operate within the "principle of least privilege" boundaries. A certain requirement of this is that administrative sections shall not be available on the general public. All administrative access points need to be restricted behind an intranet only domain, accessible over corporate VPN for valid employees.

### MAINTAINABILITY

Source code shall be written as organized as possible for future developers. This is important because it reduces the time spent searching through the code. As for as organization goes everyone will be required to comment what their code does and by

who it was made by. For example, everything CSS related will be done in separate external documents. We will have a CSS for the desktop and a separate CSS for the mobile. Currently all HTML will be done in HTML5 standards while CSS will be in CSS3 standards. The website will also be responsive so that it will appropriately scale to monitor resolution.

## PORTABILITY

### CLIENT-SIDE

The client-side of EGS Online should comply with modern HTML5 standards but with respect to less-than-fortunate user agents that require “quirks” to be applied for compatibility. EGS Online stakeholders and users alike should be able to approach and interact with the website using the following agents, at minimum:

- Chrome for Android
- Chrome for Mac, Linux, Windows
- Firefox for Mac, Linux, Windows
- Internet Explorer 11 for Windows
- Microsoft Edge for Windows
- Safari for Mac
- Safari for iOS, mobile and tablet
- Opera for Mac, Linux, Windows

Although specific versions are not available at this time, the baseline for determining those should be releases made from January 2014 and beyond.

Should the user approach the website with an unsupported client, they shall be kindly redirected to a page explaining to them why and providing guided instructions on how to reach the minimum browser requirements for their platform. This is a “best effort” attempt. Users are required to have cookies and JavaScript enabled on the agents.

Under no circumstance should Flash video be used when an alternative is available. ActiveX or NPAPI-based plugins such as Java Applets or QuickTime are prohibited.

### SERVER-SIDE

The server-side of EGS Online should be built on top of a modern JVM platform over a Linux distribution with long-term support (such as Ubuntu). These options promote cross-platform compatibility with the code and limit vendor-lock in.



## APPENDIX

### DEVELOPER WORKSTATION HARDWARE DESCRIPTION

Each developer will be issued the following machine:

#### HP Z840 WORKSTATION

"The HP Z840 Workstation, HP's highest performing workstation gets the best of HP Z DNA with incredible processing power, professional graphics, maximized memory, and internal storage capacity that helps you create work that makes a statement."

#### SPECIFICATIONS:

- Intel Xeon E5-2620 v3 Processor
- NVIDIA Quadro M6000 Graphics
- 960 GB SanDisk Ultra II Solid State Drive
- 128 GB of Hewlett Packard's UltraSlim RAM
- Windows 10 Enterprise Edition

#### USE POLICIES

These machines will be locked down in order to restrict the developers' possible actions to that which is work-related.

#### DATASHEET

<http://www8.hp.com/h20195/v2/getpdf.aspx/4AA6-4212ENUC>

### SERVER HARDWARE DESCRIPTION

Our business will deploy the following servers:

#### HPE PROLIANT DL380

"As the world's best-selling server, the DL380 just got better. Updated with the latest Intel E5-2000v4 processors and 2400MHz DDR4 memory, the DL380 is designed to adapt to the needs of any environment, from large enterprise to remote office/branch office, offering enhanced reliability, and continuous availability, all backed by a comprehensive warranty."

#### SPECIFICATIONS:

- 4 x Intel Xeon Phi 7250 Processors
- Access to 50 TB of Network Access Storage
- 256 GB RAM, 64 GB HPE SmartMemory
- Ubuntu Server 16.04.1 LTS

#### USE POLICIES

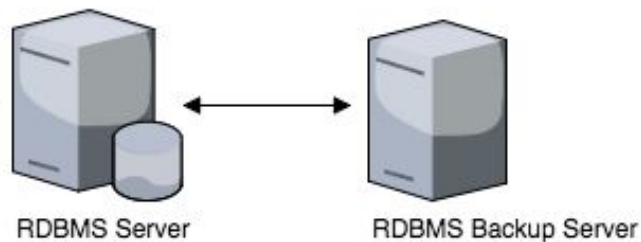
Servers will only be accessible by an appropriate and permitted entity, namely server technicians whose actions on the server will be supervised by an appointed managerial employee.

#### DATASHEET

<https://www.hpe.com/h20195/v2/getpdf.aspx/c04346247.pdf>

#### DATABASE DESCRIPTION

Our business will employ the following database infrastructure, using MySQL:



The RDBMS servers will share the same hardware policies defined under "Server Hardware Description". The backup server will always contain a replica of content in the primary RDBMS server.

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