



SOFTLAB
Software Engineering Laboratory

Software as a Service Technologies 2024-2025

clearSKY

**Software Requirements Specification
Document**

NTUA SOFTLAB

March 2025

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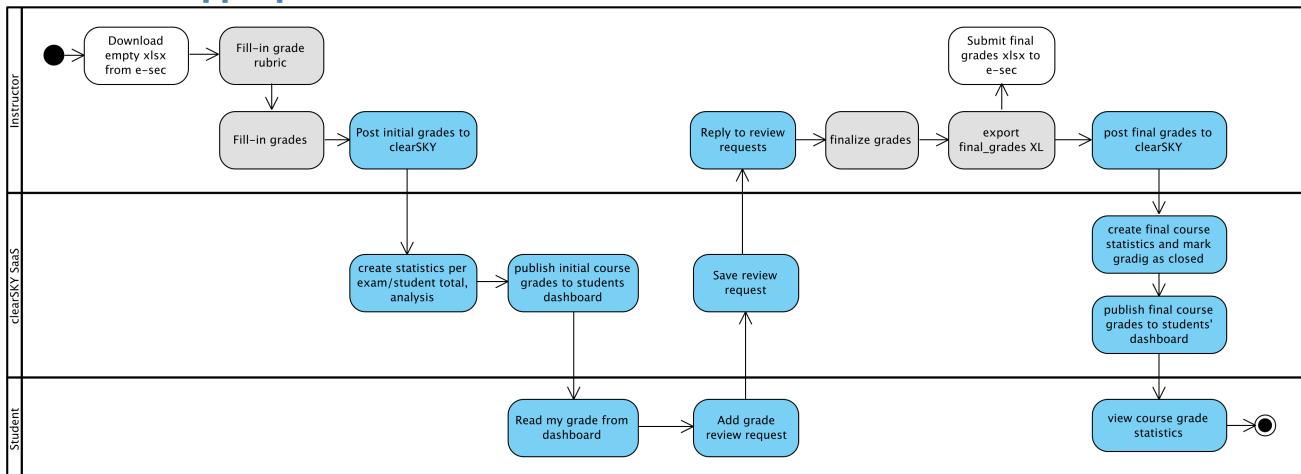
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1. Εισαγωγή

1.1. Σκοπός του λογισμικού

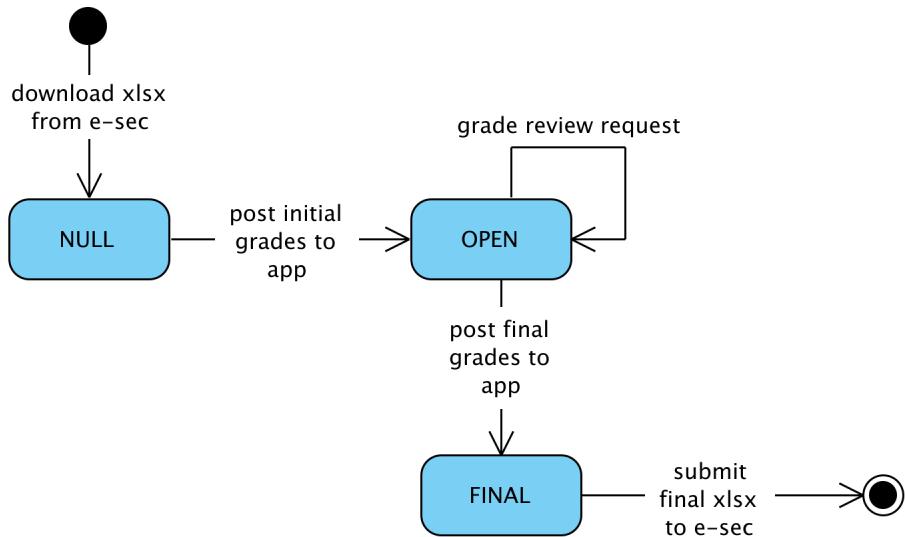
Το clearSKY είναι μια δικτυακή υπηρεσία που απευθύνεται σε διδάσκοντες όλων των βαθμίδων οι οποίοι ανακοινώνουν τις βαθμολογίες των μαθημάτων τους προτού τις οριστικοποιήσουν και επιτρέπουν έναν κύκλο αιτημάτων αναθεώρησης από τους σπουδαστές. Η διεξαγωγή της συγκεκριμένης διαδικασίας από κάθε διδάσκοντα ξεχωριστά, απαιτεί δαπάνη χρόνου η οποία μπορεί να αποφευχθεί με τη χρήση της clearSKY, με λογικές προσαρμογές από πλευράς των διδασκόντων οι οποίες εστιάζονται κυρίως στο μορφότυπο της βαθμολογίας. Για τους σκοπούς της εργασίας θα αρκεστούμε στο μορφότυπο excel που χρησιμοποιεί το νέο φοιτητολόγιο του ΕΜΠ. Το clearSKY θα τρέχει σε (υποθετικές) υποδομές νέφους με επαρκή για το σκοπό του υπολογιστική ισχύ. Οι χρήστες (διδάσκοντες, ή τα ιδρύματά τους) θα πληρώνουν ανάλογα με το πλήθος των μαθημάτων για τα οποία το χρησιμοποιούν. Η υπηρεσία θα είναι δωρεάν για τους διδασκόμενους.

1.1.1. Γενική ροή



Στο διάγραμμα φαίνεται η γενική ροή ενεργειών. Οι ενέργειες που είναι σημειωμένες με λευκό αφορούν εξωτερικά συστήματα λογισμικού, πχ το εκάστοτε λογισμικό φοιτητολογίου. Οι ενέργειες με γκρίζο γίνονται με το χέρι σε excel, ενώ οι ενέργειες με μπλε είναι αυτές που αφορούν το clearSKY.

1.1.2. Grades states



Η αρχική κατάσταση βαθμολογίας είναι η VOID, δηλαδή δεν υπάρχει βαθμολογία.

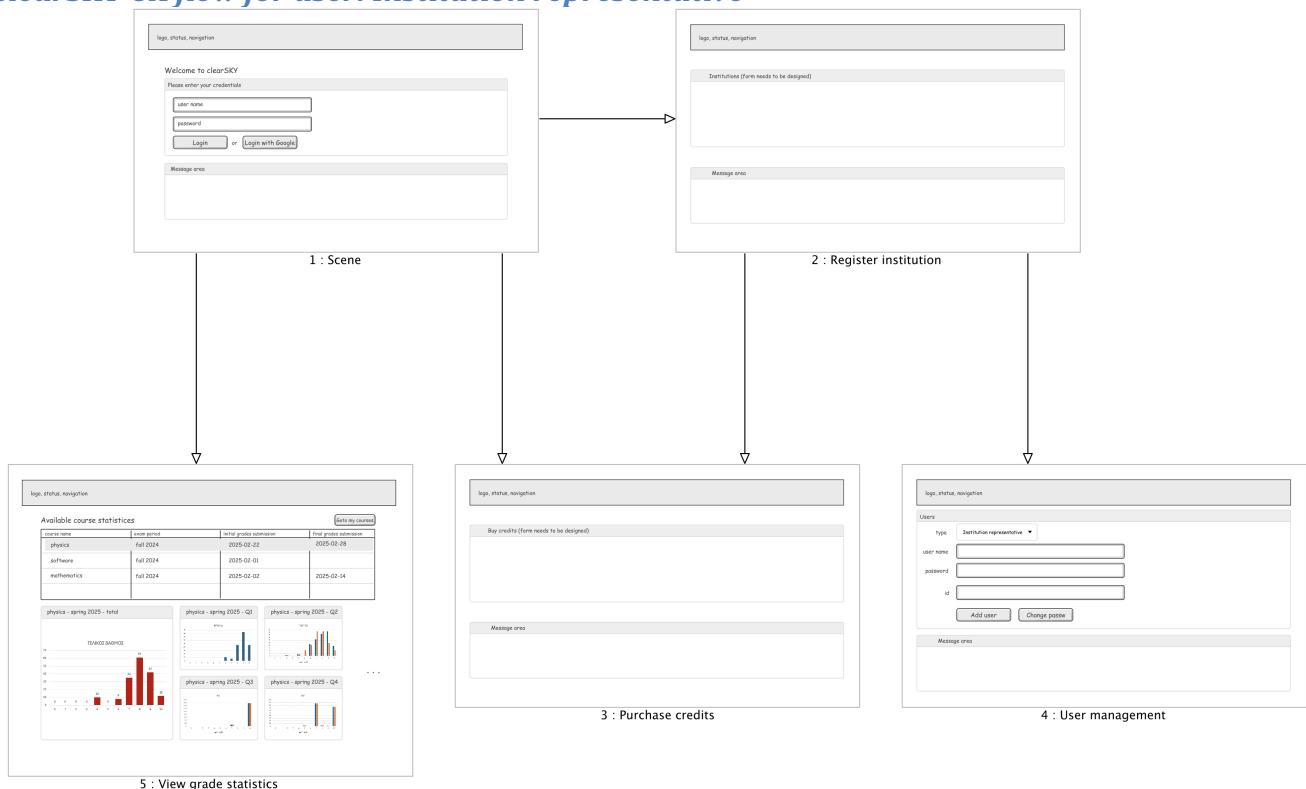
Στην κατάσταση OPEN, οι βαθμολογίες υπάρχουν στο excel και στην εφαρμογή clearSKY. Μπορούν να μεταβληθούν μετά από αιτήματα review.

Η τελική κατάσταση (FINAL) μετά την καταχώρηση της οριστικής βαθμολογίας στο εκάστοτε φοιτητολόγιο (γίνεται εκτός της εφαρμογής) δεν επιτρέπει τροποποίηση βαθμολογίας.

1.2. Διεπαφές

1.2.1. Διεπαφές χρήστη

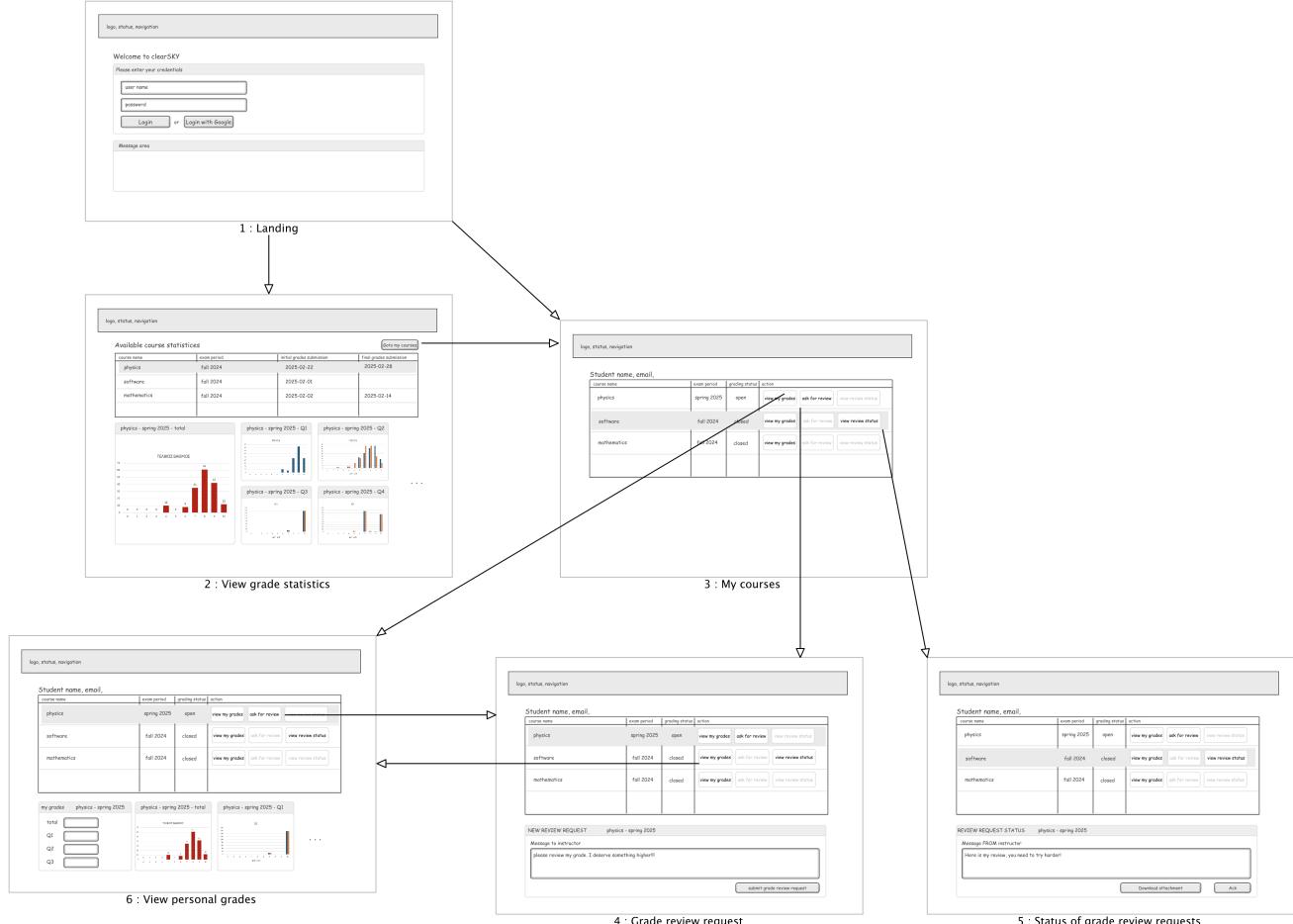
clearSKY UX flow for user: Institution representative



clearSKY UX flow for user: Instructor

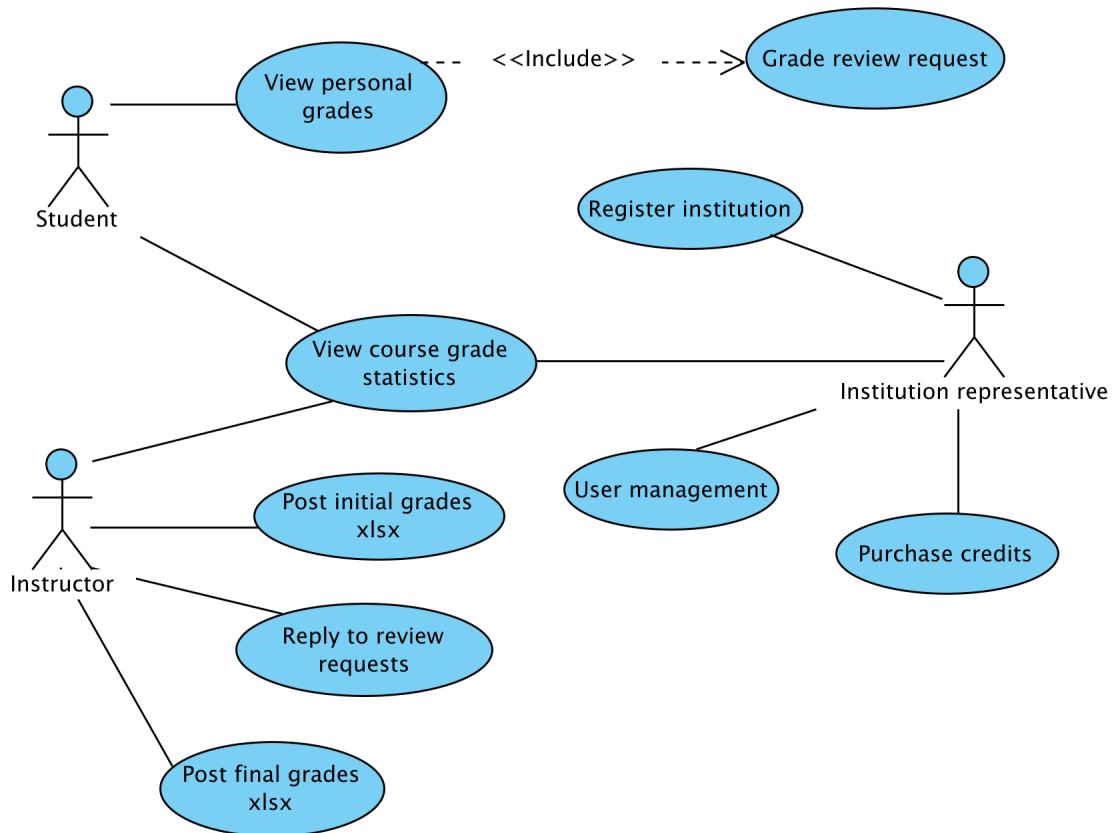


clearSKY UX flow for user: Student



2. Προδιαγραφές απαιτήσεων λογισμικού

2.1. clearSKY use case model



2.2. Register institution

ID: UC09

Καταχώρηση ιδρύματος.

2.2.1. Primary Actors

✗ Institution representative

2.2.2. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	N/A
Post-conditions	✗ Purchase credits
Author	VV

Assumptions

2.2.3. Requirements

Institutions management

ID: REQ003

Basic institutions management. Can be omitted.

Login

ID: REQ001

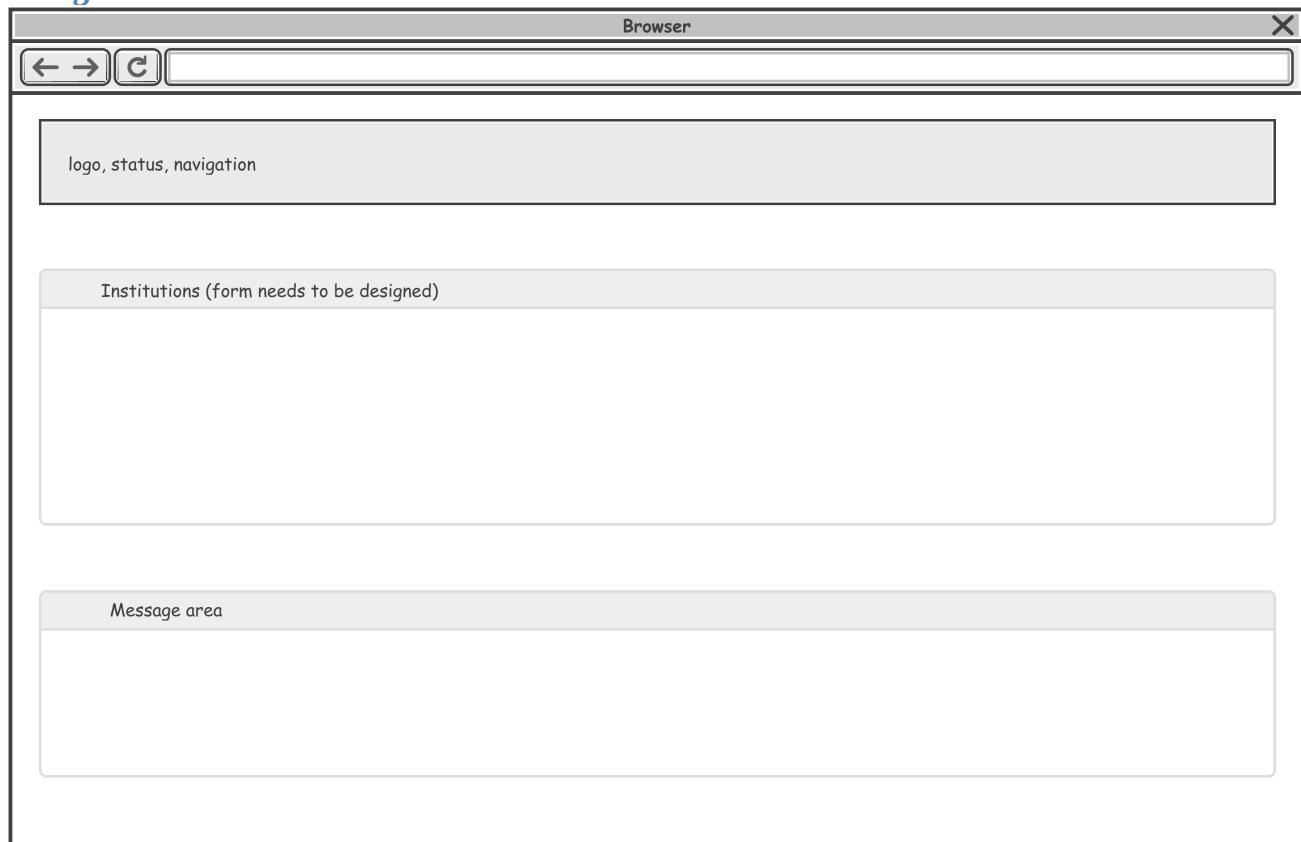
Basic login functionality

2.2.4. Relationships

Relationship	From	To
— unnamed	 Institution representative	 Register institution

2.2.5. Sub Diagrams

Manage institutions



2.3. User management

ID: UC10

Διαχείριση χρηστών. Επιπλέον του username ή email που ταυτοποιεί το λογαριασμό χρήστη, κάθε χρήστης θα έχει ένα μοναδικό αναγνωριστικό που είναι ο κωδικός που αναγράφεται στη βαθμολογία του.

2.3.1. Primary Actors

 Institution representative

2.3.2. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	 Register institution
Post-conditions	N/A
Author	VV
Assumptions	-

2.3.3. Requirements

User management

ID: REQ002

Basic user management operations. Need to establish a FK (eg 031xxxx) to map grades from excel to students (users).

2.3.4. Relationships

Relationship	From	To
— unnamed	 Institution representative	 User management

2.3.5. Sub Diagrams

User management

The screenshot shows a web-based user management application. At the top, there's a header bar with a logo, status, and navigation links. Below this is a form titled 'Users' with fields for 'user name', 'password', and 'id'. A dropdown menu labeled 'type' is set to 'Institution representative'. At the bottom of the form are two buttons: 'Add user' and 'Change passw'. To the right of the 'id' field, a note specifies: 'ID for extracting grades from excel (e.g. 03112345) For students, only'. Above the 'id' field, another note specifies: 'Instructor, student or representative'. A 'Message area' is located at the bottom of the form.

2.4. Purchase credits

ID: UC08

Ajopá credits.

2.4.1. Primary Actors

👤 Institution representative

2.4.2. Details

Level	N/A
Complexity	N/A
Use Case Status	N/A
Implementation Status	N/A
Preconditions	➡ Register institution
Post-conditions	➡ Post initial grades xlsx
Author	N/A
Assumptions	N/A

2.4.3. Requirements

📄 *Buy credits*

ID: REQ004

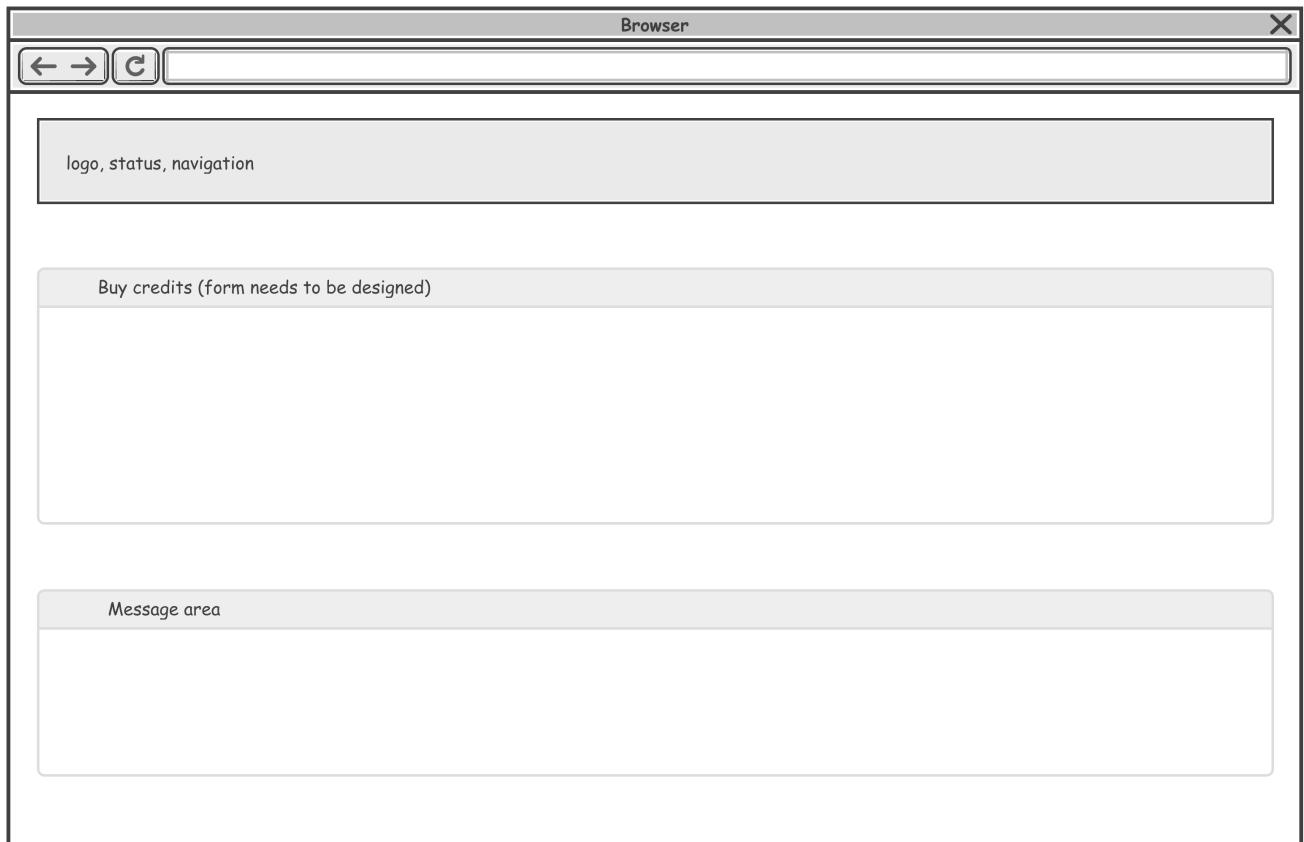
Add credits. 1 credit = 1 submission (initial+final)

2.4.4. Relationships

Relationship	From	To
— unnamed	 Institution representative	 Purchase credits

2.4.5. Sub Diagrams

Purchase credits



● 2.5. Post initial grades xlsx

ID: UC01

Ανέβασμα βαθμολογιών από διδάσκοντες.

2.5.1. Primary Actors

 Instructor

2.5.2. Details

Level	User
Complexity	Low
Use Case Status	Initial

Implementation Status	Scheduled
Preconditions	N/A
Post-conditions	<ul style="list-style-type: none"> ● Post final grades.xlsx ● View personal grades ● Register institution ● Purchase credits
Author	VV
Assumptions	-

2.5.3. Requirements

 ***Calc grade statistics***

ID: REQ010

Make grade distributions

 ***Create temp personal grades details***

ID: REQ015

Upd temporary datastore with personal grades

 ***Extract grades from excel***

ID: REQ007

Parse excel file

 ***Post initial grades***

ID: REQ005

upload initial grades

 ***Verify excel structure***

ID: REQ006

Make sure that excel can be processed

2.5.4. Relationships

Relationship	From	To
— unnamed	 Instructor	<ul style="list-style-type: none"> ● Post initial grades.xlsx

2.5.5. Sub Diagrams

Post initial grades

Browser

logo, status, navigation

Instructor name

INITIAL GRADES POSTING

xlsx file with initial grades

select file to upload or drag and drop submit initial grades

XLSX file parsing

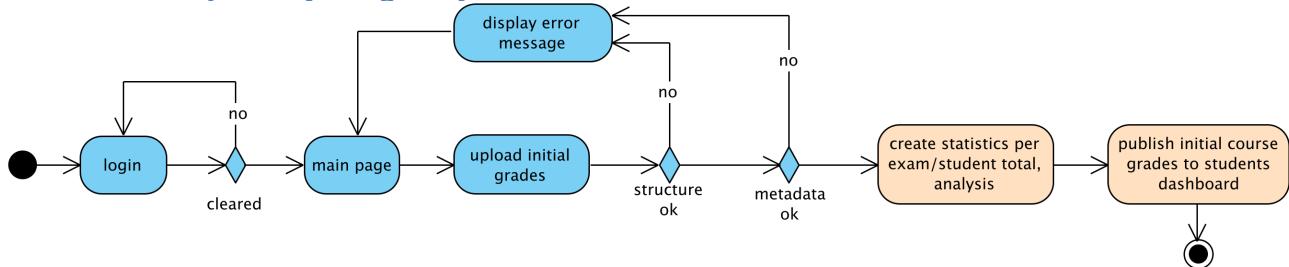
Course: Course name

Period: Exam period

n. of grades N CONFIRM CANCEL

Message area

Post initial xlsx (Activity Diagram)



2.5.6. Traceability

Type	Value
Transit From	Γενική ροή .Post initial grades to clearSKY

2.6. View course grade statistics

ID: UC06

Εμφάνιση στατιστικών για τα μαθήματα με οριστικοποιημένη βαθμολογία.

2.6.1. Primary Actors

👤 Institution representative, 🎓 Instructor, 🏫 Student

2.6.2. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	 Post initial grades.xlsx
Post-conditions	N/A
Author	VV
Assumptions	-

2.6.3. Requirements

Prepare total statistics dashboard

ID: REQ011

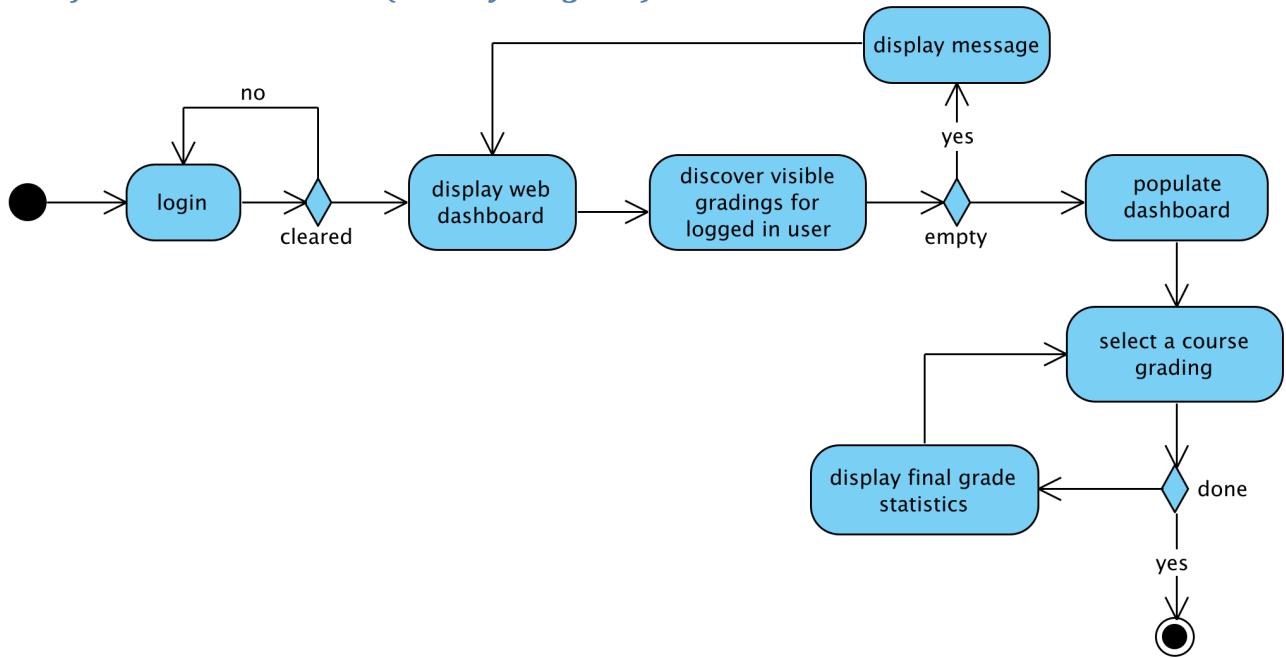
Create dashboard with statistics for all courses

2.6.4. Relationships

Relationship	From	To
— unnamed	 Student	 View course grade statistics
— unnamed	 Instructor	 View course grade statistics
— unnamed	 Institution representative	 View course grade statistics

2.6.5. Sub Diagrams

Access final course statistics (Activity Diagram)



View course grade statistics

The screenshot shows a web browser window titled 'Browser' with a toolbar containing back, forward, and search buttons. The main content area displays 'Available course statistics' for three courses: physics, software, and mathematics. Each course row includes its name, exam period, initial grades submission date, and final grades submission date. Below this table, five bar charts are displayed in a grid, showing final grade statistics for different quarters (Q1-Q4) and total results. The charts use red bars for 'ΕΠΙΦΑΣΙΑ' (Final) and blue bars for 'ΓΡΑΪΤΟ' (Intermediate).

course name	exam period	initial grades submission	final grades submission
physics	fall 2024	2025-02-22	2025-02-28
software	fall 2024	2025-02-01	
mathematics	fall 2024	2025-02-02	2025-02-14

Available course statistics

physics - spring 2025 - total

ΤΕΛΙΚΟΣ ΒΑΘΜΟΣ

ΕΠΙΦΑΣΙΑ

0	0	0	0	10	0	8	61	42	12
0	0	0	0	0	0	0	0	0	0

physics - spring 2025 - Q1

ΕΠΙΦΑΣΙΑ

0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0

physics - spring 2025 - Q2

ΕΠΙΦΑΣΙΑ

0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0

physics - spring 2025 - Q3

Ε1

0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0

physics - spring 2025 - Q4

Ε2

0	1	2	3	4	5	6	7	8	9	10
0	0	0	0	0	0	0	0	0	0	0

2.6.6. Traceability

Type	Value
Transit From	 Γενική ροή .view course grade statistics

2.7. View personal grades

ID: UC02

Θέαση βαθμολογιών σπουδαστή. Η ταυτοποίηση του σπουδαστή γίνεται από το username του κατά την είσοδο στο σύστημα. Ο σπουδαστής μπορεί να ζητήσει αναθεώρηση βαθμολογίας ενεργοποιώντας την περίπτωση χρήσης [Grade review request](#).

2.7.1. Primary Actors



2.7.2. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	 Login
Post-conditions	 Grade review request
Author	VV
Assumptions	-

2.7.3. Requirements

[Get student grades](#)

ID: REQ008

Read student grades from temp datastore

[Login](#)

ID: REQ001

Basic login functionality

[Prepare personal grades dashboard](#)

ID: REQ009

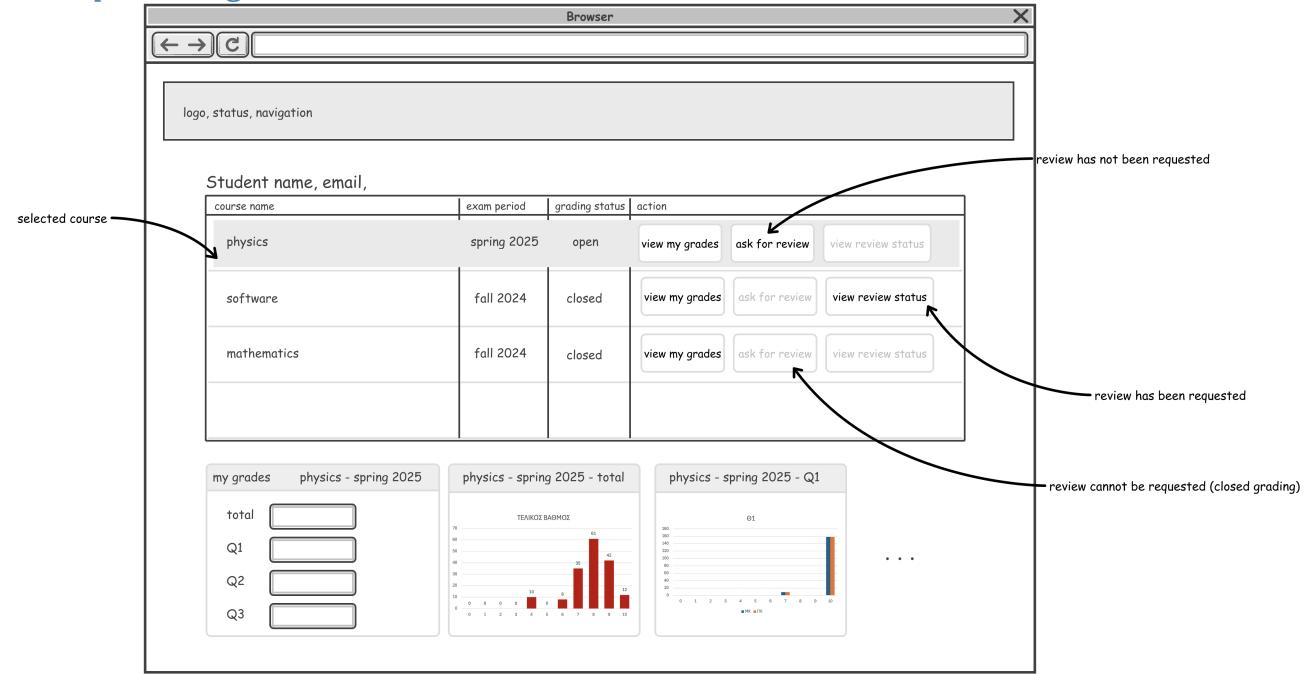
Create list with available (temp) detailed grades for current student

2.7.4. Relationships

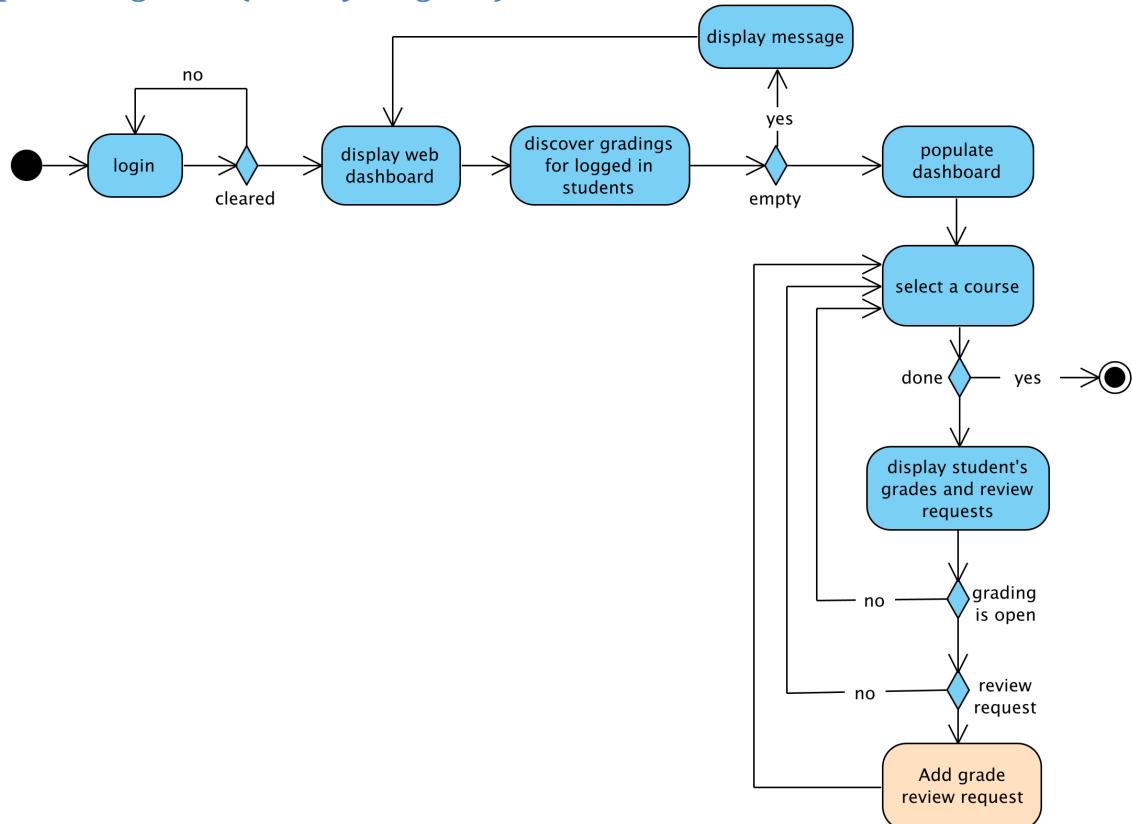
Relationship	From	To
unnamed	View personal grades	Grade review request
unnamed	Student	View personal grades

2.7.5. Sub Diagrams

Access personal grades



Access personal grades (Activity Diagram)



Access personal grades - review request status

The screenshot shows a browser window titled "Browser". At the top left are navigation icons for back, forward, and search. The main content area has a header "Student name, email," followed by a table. The table has four columns: "course name", "exam period", "grading status", and "action". There are three rows of data:

course name	exam period	grading status	action
physics	spring 2025	open	view my grades ask for review view review status
software	fall 2024	closed	view my grades ask for review view review status
mathematics	fall 2024	closed	view my grades ask for review view review status

2.7.6. Traceability

Type	Value
Transit From	Γενική ροή . Read my grade from dashboard

● 2.8. Grade review request

ID: UC03

Αίτημα αναθεώρησης βαθμολογίας.

2.8.1. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	View personal grades
Post-conditions	Reply to review requests

Author VV

Assumptions -

2.8.2. Requirements

Review request form

ID: REQ012

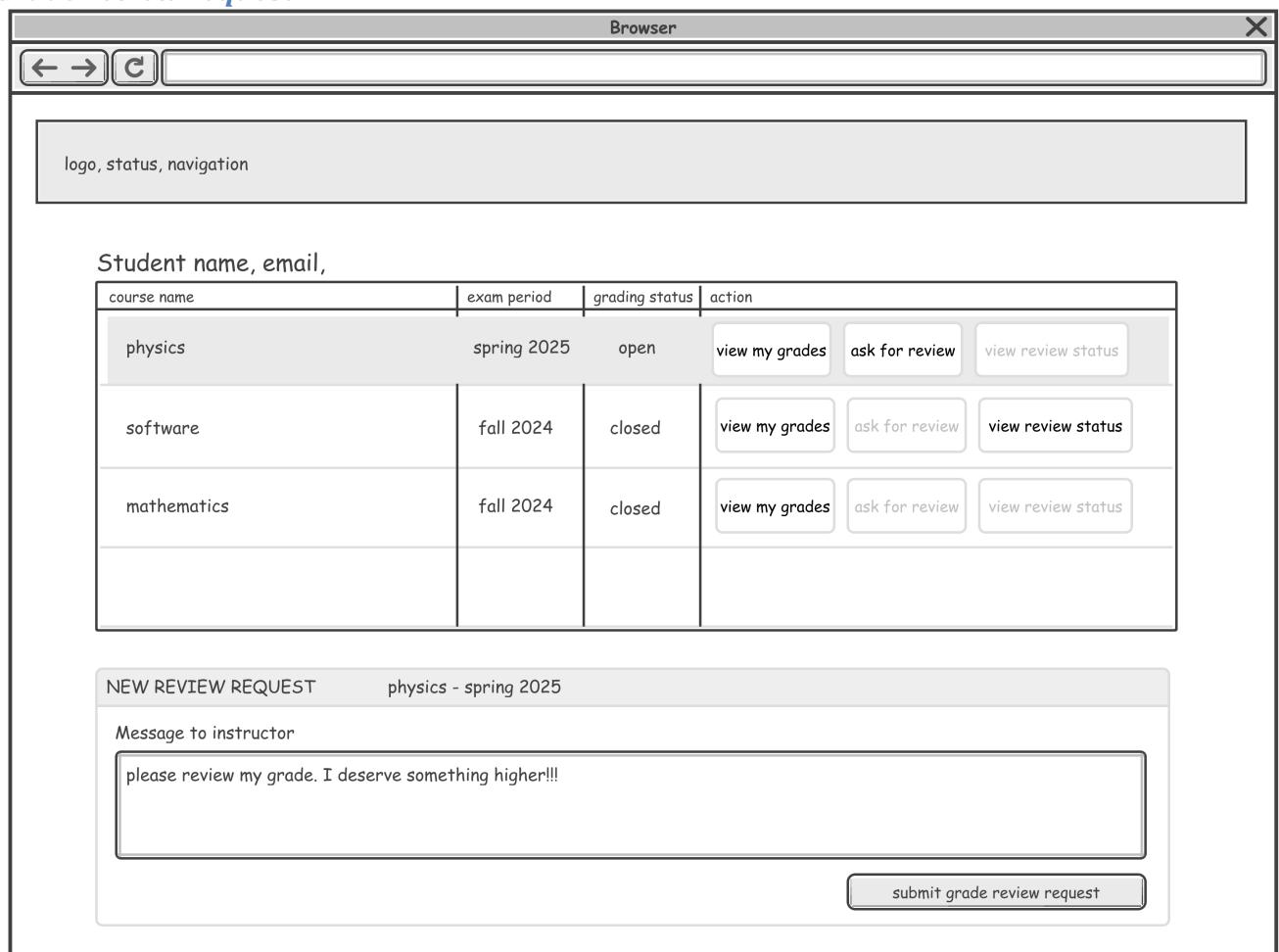
Display a form to submit review requests

2.8.3. Relationships

Relationship	From	To
→ unnamed	 View personal grades	 Grade review request

2.8.4. Sub Diagrams

Grade review request



The screenshot shows a web browser window titled "Browser". The address bar contains a placeholder "C". The main content area displays a table of student courses with columns for course name, exam period, grading status, and action buttons. Below the table, a "NEW REVIEW REQUEST" form is shown with a message input field and a "submit grade review request" button.

course name	exam period	grading status	action
physics	spring 2025	open	view my grades ask for review view review status
software	fall 2024	closed	view my grades ask for review view review status
mathematics	fall 2024	closed	view my grades ask for review view review status

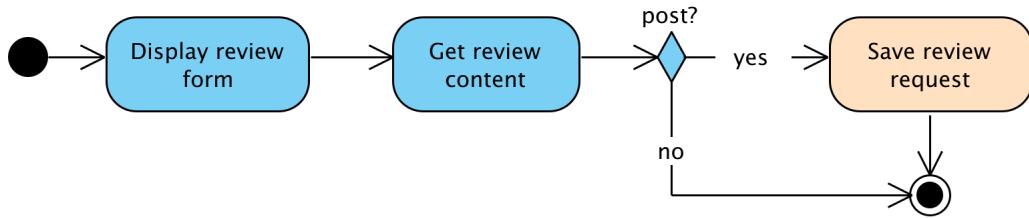
NEW REVIEW REQUEST physics - spring 2025

Message to instructor

please review my grade. I deserve something higher!!!

[submit grade review request](#)

Grades review request (Activity Diagram)



2.8.5. Traceability

Type	Value
Transit From	Access personal grades (Activity Diagram) .Add grade review request

2.9. Reply to review requests

ID: UC04

Απάντηση σε αιτήματα επαναξέτασης βαθμολογίας. Με την απάντηση ενός αιτήματος, διαγράφονται οι προσωρινές εγγραφές που αφορούν την αρχική αναλυτική βαθμολογία κάθε σπουδαστή.

2.9.1. Primary Actors

Instructor

2.9.2. Details

Level	User
Complexity	Low
Use Case Status	Initial
Implementation Status	Scheduled
Preconditions	Post initial grades.xlsx Grade review request
Post-conditions	Post final grades.xlsx
Author	VV
Assumptions	-

2.9.3. Requirements

Delete temp personal grade details

ID: REQ016

On finalizing grades, delete personal grades from datastore

Review reply form

ID: REQ013

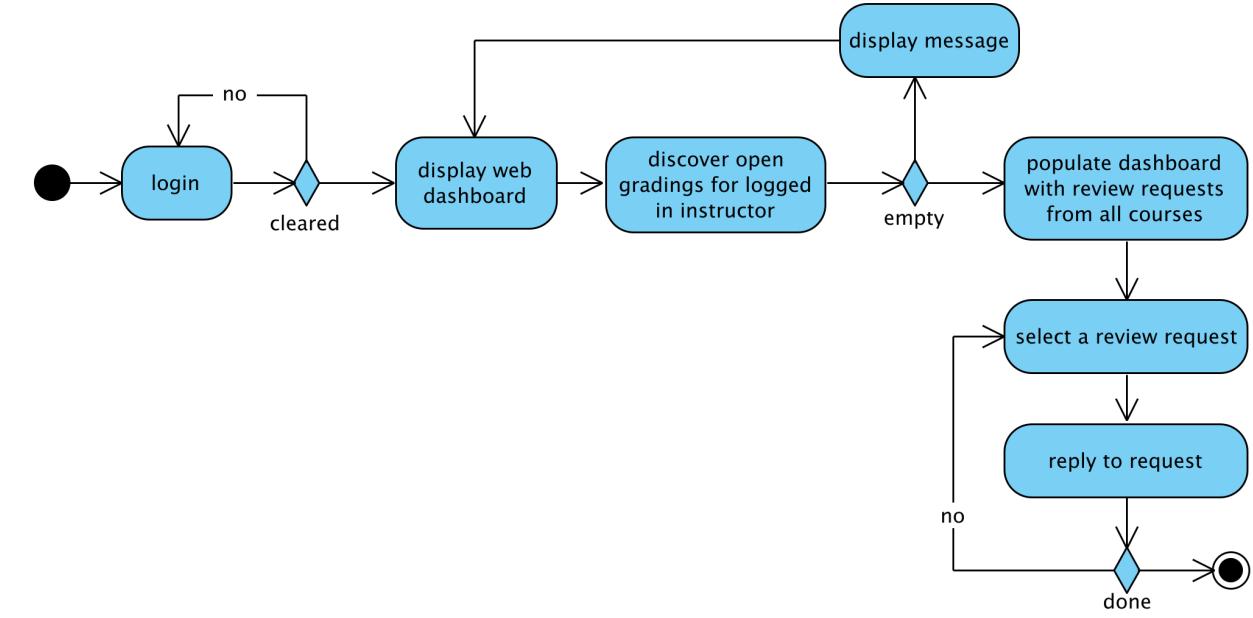
Display a form to reply to review requests

2.9.4. Relationships

Relationship	From	To
— unnamed	Instructor	Reply to review requests

2.9.5. Sub Diagrams

Examine review requests (Activity Diagram)



Reply to review request - step 1

The screenshot shows a web browser window titled "Browser". The header bar includes standard buttons for back, forward, and search. Below the header is a light gray navigation bar containing placeholder text: "logo, status, navigation". The main content area displays a table titled "Instructor name". The table has four columns: "course name", "exam period", "student", and "action". There are three rows of data:

course name	exam period	student	action
software II	spring 2025	john doe	<input type="button" value="Reply"/>
software II	spring 2025	jane doe	<input type="button" value="Reply"/>
software I	fall 2024	george smith	<input type="button" value="Reply"/>

Reply to review request - step 2

Browser

The screenshot shows a web application interface. At the top, there's a header bar with a back/forward button, a search icon, and a close button. Below the header is a light gray navigation bar containing the text "logo, status, navigation". The main content area has a title "Instructor name" followed by a table with four columns: course name, exam period, student, and action. There are three rows in the table, each with a "Reply" button. Below the table is a modal dialog titled "REPLY TO GRADE REVIEW REQUEST". It contains fields for "Action" (set to "Total accept"), "instructor's message" (a large text input field), and a "upload reply attachment" button.

course name	exam period	student	action
software II	spring 2025	john doe	<button>Reply</button>
software II	spring 2025	jane doe	<button>Reply</button>
software I	fall 2024	george smith	<button>Reply</button>

REPLY TO GRADE REVIEW REQUEST

software II spring 2025 john doe

Action: Total accept ▾

instructor's message:

upload reply attachment

2.9.6. Traceability

Type	Value
Transit From	Γενική ροή.Reply to review requests

● 2.10. Post final grades xlsx

ID: UC05

Ανέβασμα τελικής βαθμολογίας μαθήματος.

2.10.1. Primary Actors

Instructor

2.10.2. Details

Level	N/A
Complexity	N/A
Use Case Status	N/A
Implementation Status	N/A

Preconditions	 Post initial grades.xlsx  Purchase credits
Post-conditions	N/A
Author	N/A
Assumptions	N/A

2.10.3. Requirements

Calc grade statistics

ID: REQ010

Make grade distributions

Extract grades from excel

ID: REQ007

Parse excel file

Post final grades

ID: REQ014

Upload final grades

Verify excel structure

ID: REQ006

Make sure that excel can be processed

2.10.4. Relationships

Relationship	From	To
— unnamed	 Instructor	 Post final grades.xlsx

2.10.5. Sub Diagrams

Post final grades

Browser

logo, status, navigation

Instructor name

FINAL GRADES POSTING

xlsx file with FINAL grades

select file to upload or drag and drop submit FINAL grades

XLSX file parsing

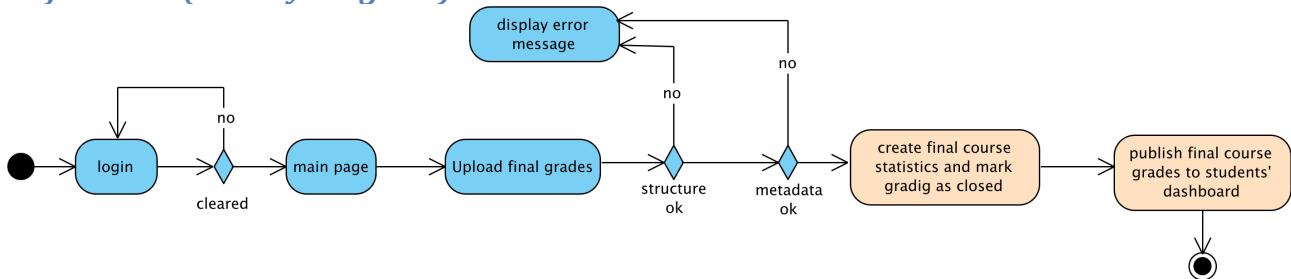
Course: Course name

Period: Exam period

n. of grades N CONFIRM CANCEL

Message area

Post final xlsx (Activity Diagram)



2.10.6. Traceability

Type	Value
Transit From	Γενική ροή.post final grades to clearSKY

2.11. clearSKY functional requirements

