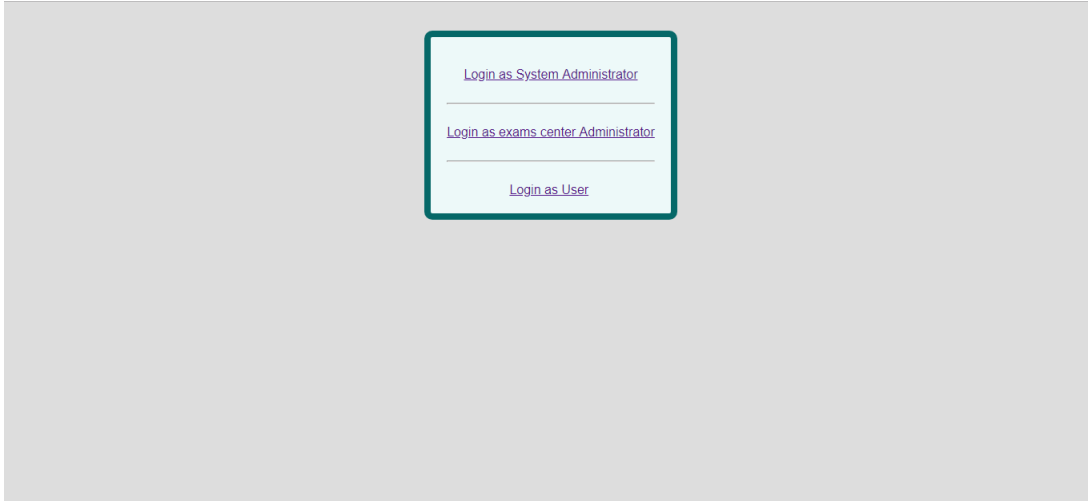


KNOWLEDGE CERTIFICATION SYSTEM

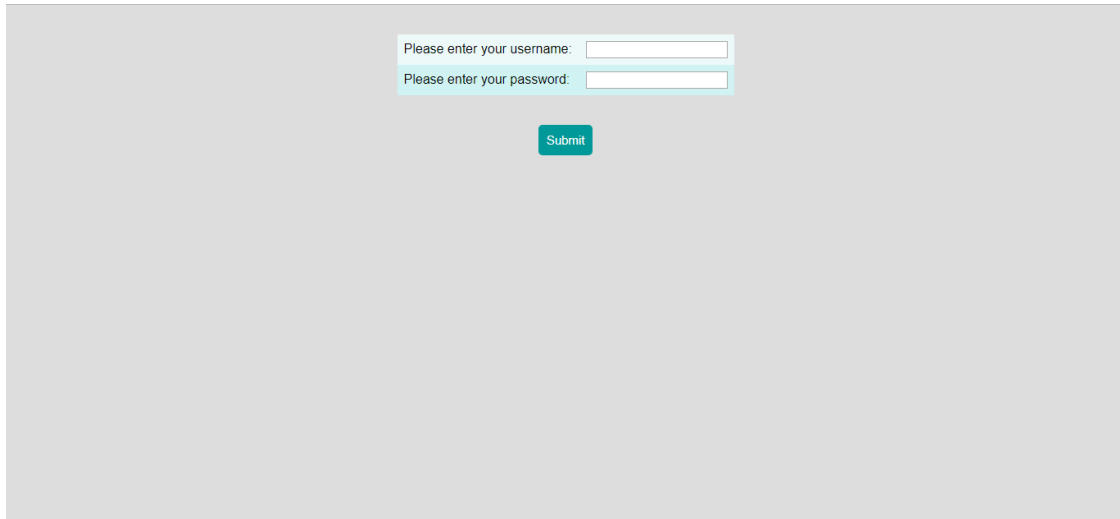
DROSOU MARIA

Web app presentation

Home page (<http://localhost:8080/ExamsWebApp/index.jsp>):



The user, after selecting the category to which he/she belongs, goes to the following login form, to enter his/her username and password:

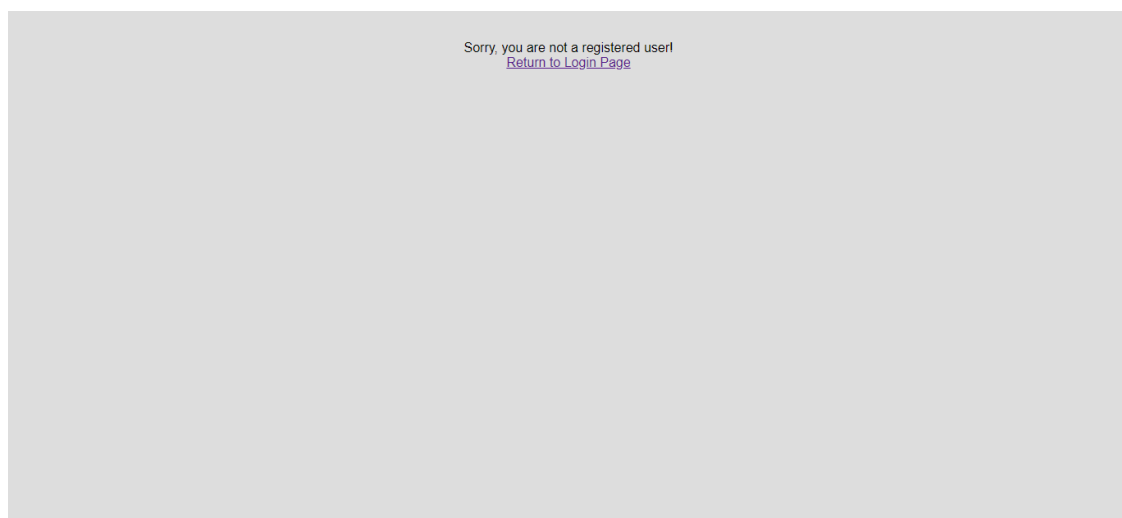


A login form on a light gray background. It contains two input fields: "Please enter your username:" and "Please enter your password:". Below the fields is a teal "Submit" button.

| | |
|-----------------------------|--------------------------|
| Please enter your username: | <input type="text"/> |
| Please enter your password: | <input type="password"/> |

[Submit](#)

If the input values are incorrect, the user is taken to the following page:



Else if the input values are valid, the user is redirected according to his/her type as user (system administrator / center administrator / ordinary user-examinee) to the corresponding page.

Login as System Administrator:

ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

Welcome admin

System Administrator’s options:

- 1. Add exam center

ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

Add new exam center:

Name of Exam Center:

Thessaloniki

Address of Exam Center:

Aristotelous 33

Add

ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

New Exam Center was added.

2. Add Admin to exam center

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Select Exam Center

ID: 3, Name: Thessaloniki, Address: Aristotelous 33 ▾

Select Admin from users

| User ID | Name | Username |
|-------------------------------------|---------------------|----------|
| <input type="radio"/> 1 | Marina Akrivopoulou | user1 |
| <input type="radio"/> 3 | George Koroneos | user2 |
| <input type="radio"/> 4 | Mary Pangiotou | user3 |
| <input type="radio"/> 5 | Victoria Latsi | user4 |
| <input type="radio"/> 6 | Marina Nikolaou | MarNik |
| <input type="radio"/> 7 | maria drosou | user7 |
| <input type="radio"/> 10 | Hellen Drosou | hellend |
| <input checked="" type="radio"/> 12 | George Marinos | george |

Submit

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

New admin, George Marinos, was added as administrator of exam center with ID 3.

3. Add users

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Add new User:

Name:

Elena Papagianopoulou

Username:

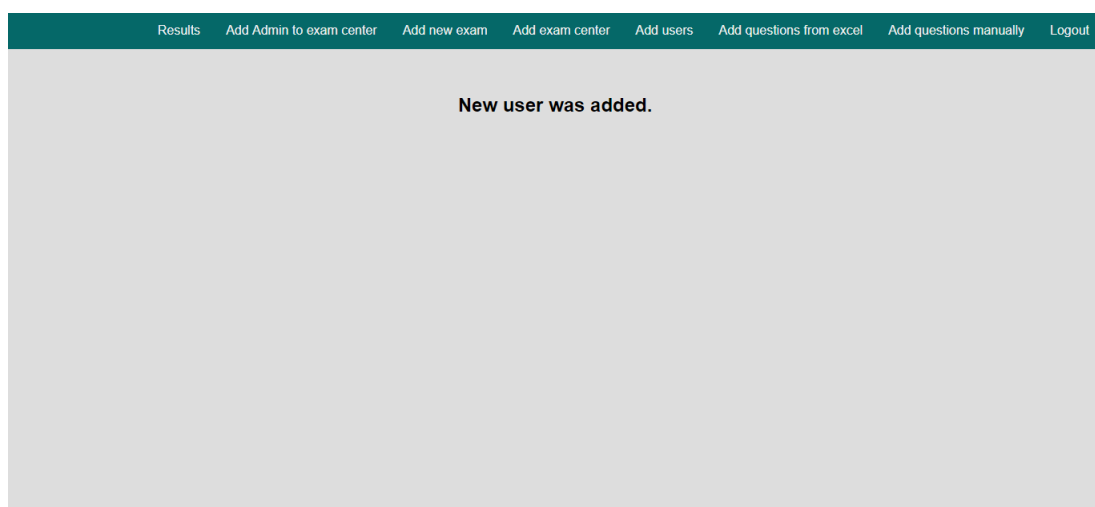
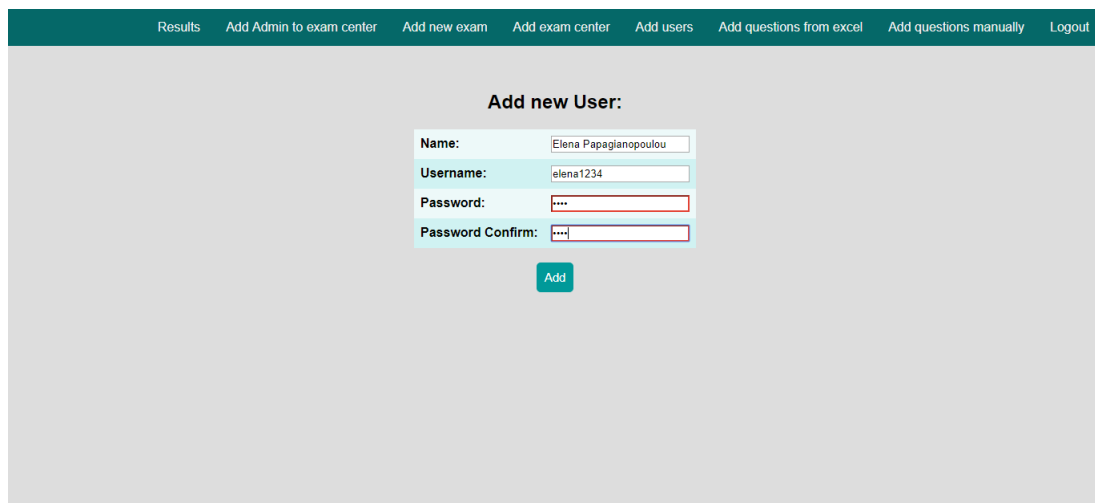
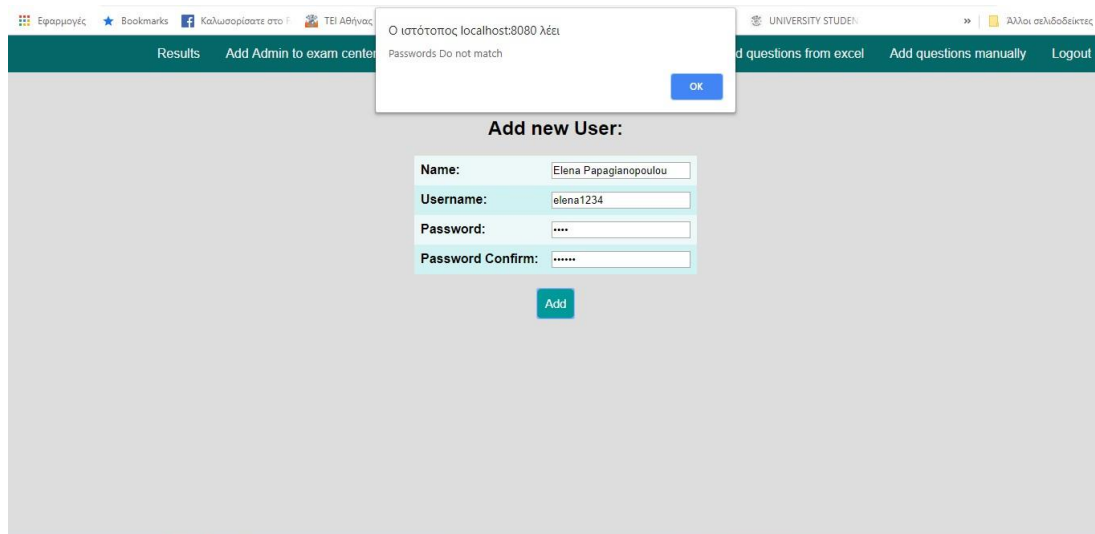
elena1234

Password:

Password Confirm:

Add

If the confirmation password is pressed incorrectly, the following message is displayed:



4. Add new exam

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Select Exam Center
ID: 3, Name: Thessaloniki, Address: Aristotelous 33 ▾

Add Exam

| | |
|-------|---|
| Date: | <input type="text" value="25/09/2018"/> |
| Time: | <input type="text" value="11:20 μμ"/> |

Add

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

New Exam was added.

5. Add questions manually

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Add new question:

| | |
|-----------------|---|
| Question: | <input type="text"/> |
| Answer 1: | <input type="text"/> |
| Answer 2: | <input type="text"/> |
| Answer 3: | <input type="text"/> |
| Answer 4: | <input type="text"/> |
| Correct Answer: | <input type="radio"/> Answer 1 <input type="radio"/> Answer 2 <input type="radio"/> Answer 3 <input type="radio"/> Answer 4 |

Add

ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

Add new question:

Question:

When designing a relational database, the first step of data modeling is known as the

Answer 1:

Conceptual Model

Answer 2:

Physical Model

Answer 3:

Context Model

Answer 4:

Logical Model

Correct Answer: ☒ Answer 1 ☐ Answer 2 ☐ Answer 3 ☐ Answer 4

Add

ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

New question was added.

6. Add questions from excel

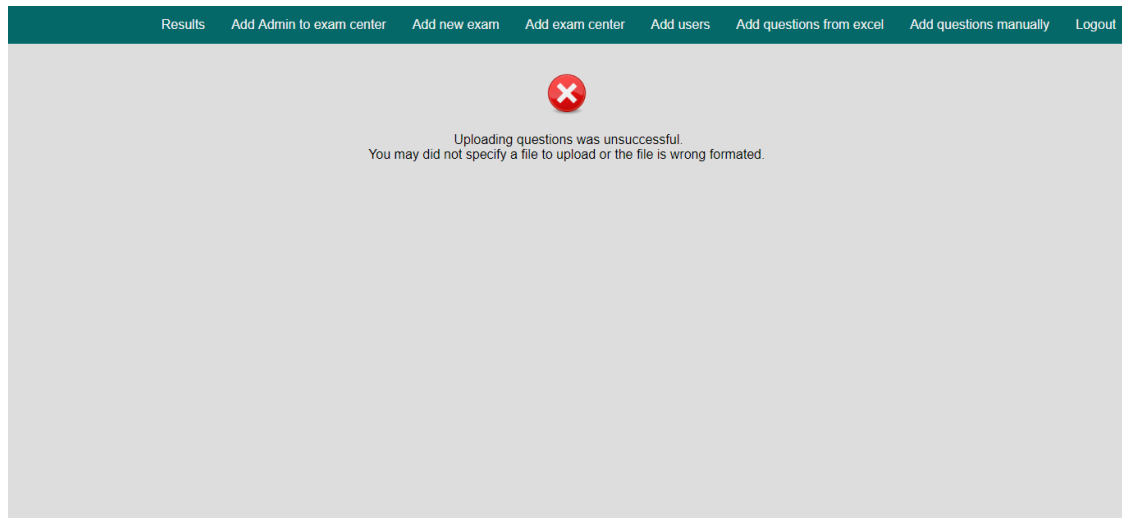
ResultsAdd Admin to exam centerAdd new examAdd exam centerAdd usersAdd questions from excelAdd questions manuallyLogout

Excel File Upload:

File: Επλογή αρχείου Δεν επιλέχθηκε...ανένα αρχείο.

Upload

If the user does not upload a file or for some other reason the uploading fails, the result is:



A similar error message also appears in the other functions, if something goes wrong and the process is not completed successfully.

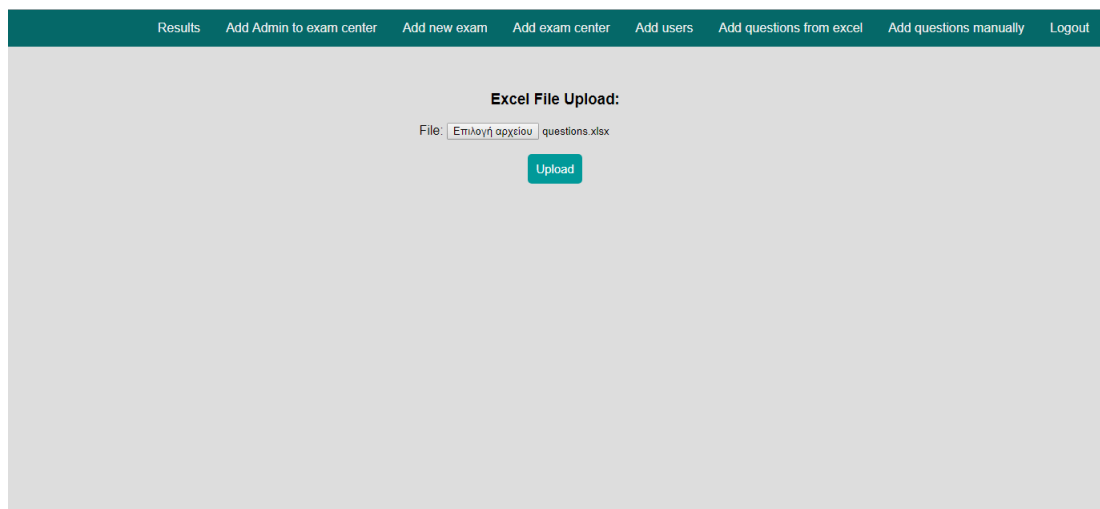
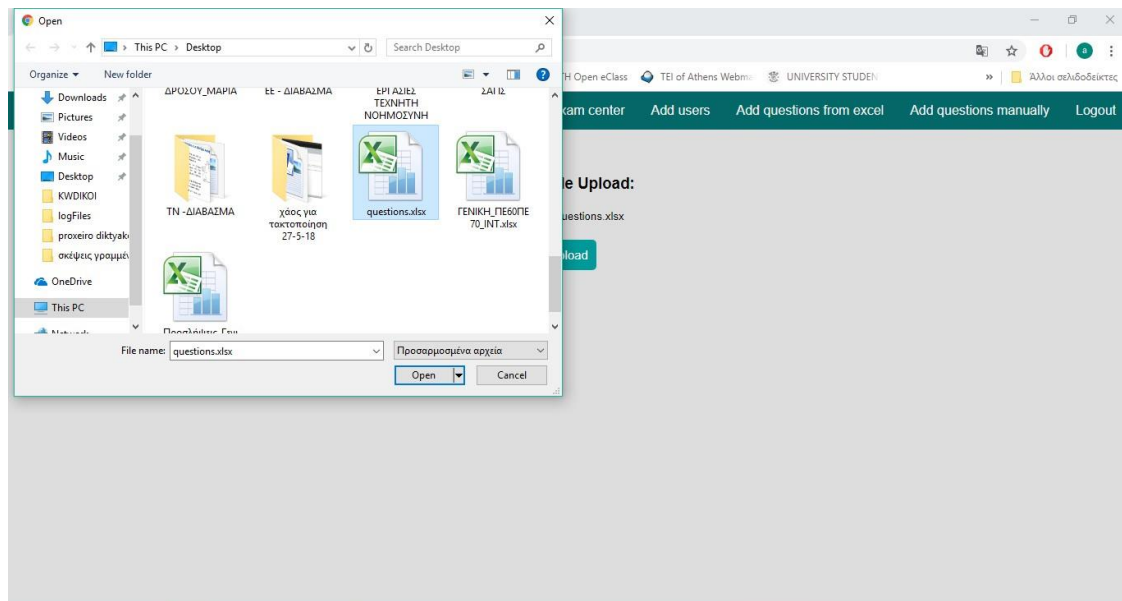
The structure that the excel file is expected to have is as shown below:

The screenshot shows an Excel spreadsheet titled "questions.xlsx - Microsoft Excel μη εμπορική χρήση". The spreadsheet has a header row with columns A through F. The data rows contain questions and their corresponding answers.

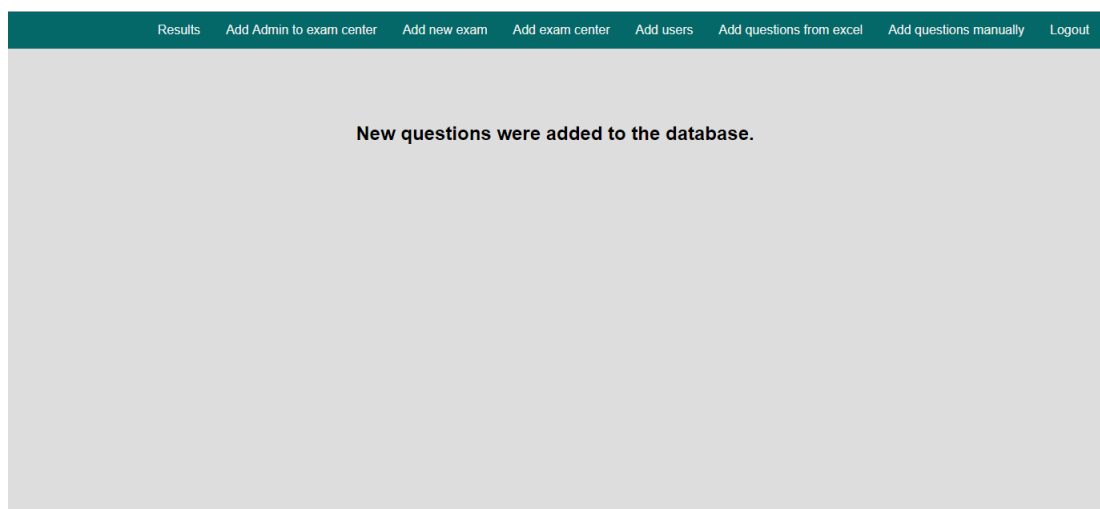
| | A | B | C | D | E | F |
|----|---|---------------------------|-----------------------|--------------------|--------------------|----------------|
| 1 | Question | Answer 1 | Answer 2 | Answer 3 | Answer 4 | Correct Answer |
| 2 | What is the term used for describing the judgmental or commonsense part of problem solving | Heuristic | Critical | Value based | Analytical | 1 |
| 3 | Which kind of planning consists of successive representations of different levels of a plan | non-hierarchical planning | hierarchical planning | project planning | None of the above | 2 |
| 4 | Decision support programs are designed to help managers make | budget projections | visual presentations | business decisions | vacation schedules | 3 |
| 5 | | | | | | |
| 6 | | | | | | |
| 7 | | | | | | |
| 8 | | | | | | |
| 9 | | | | | | |
| 10 | | | | | | |
| 11 | | | | | | |
| 12 | | | | | | |
| 13 | | | | | | |
| 14 | | | | | | |

If the user gives the file correctly, then:

Initially by clicking on "Select File", a window will open with the files of his computer and he will be able to select only excel files:



Successful result message:



7. Exam's results

Results Add Admin to exam center Add new exam Add exam center Add users Add questions from excel Add questions manually Logout

☒ Get all results

☐ Get results of exam center with ID:

☐ Get results of exam center with ID: in date:

☐ Get results of user with ID:

Submit

The user selects the type of results and sees the corresponding results which are sent through web service.

Below is how each option is displayed to the user and how to the webserver address (JSON format)

View all results:

Results Add Admin to exam center Add new exam Add exam center Add users Add questions from excel Add questions manually Logout

Results:

Exam Center Informations:
ID: 1, Name: Ilioupoli, Address: Posidonos 41

Exam informations:
ID: 1, Date: 2018-09-06, Time: 19:00:00

Result 1 of exam with ID 1

User Informations: ID: 1, Name: Marina Akrivopoulou, Username: user1

Questions:

Question ID: 23
Question: Spamming is the act of
1. Sending unsolicited messages
2. Blocking a website
3. Internet time theft
4. Talking a person through the cyberspace
User answer: 1 (Date: 2018-09-06, Time: 19:08:35)
Correct answer: 1

Question ID: 11
Question: Which of the following is not a computer language
1. BASIC
2. COBOL
3. LOTUS
4. FORTRAN
User answer: 2 (Date: 2018-09-06, Time: 19:08:39)
Correct answer: 3

Question ID: 26
Question: When designing a relational database, the first step of data modeling is known as the
1. Conceptual Model
2. Physical Model
3. Context Model
4. Logical Model
User answer: 3 (Date: 2018-09-06, Time: 19:08:44)
Correct answer: 1

Question ID: 15
Question: A computer programmer
1. enters data into computer
2. repairs a Computer
3. changes flow chart into instructions
4. writes programs
User answer: 4 (Date: 2018-09-06, Time: 19:08:47)
Correct answer: 4

Question ID: 37
Question: Discrete data that is entered into formatted fields rather than entered in free text is known as
1. Structured Data
2. Data Integrity
3. Quantitative Data
4. Continuous Data
User answer: 1 (Date: 2018-09-06, Time: 19:08:50)
Correct answer: 1

Exam informations:
ID: 3, Date: 2018-09-23, Time: 20:00:00

Result 1 of exam with ID 3

User Informations: ID: 3, Name: George Koroneos, Username: user2

Questions:

Question ID: 2
Question: The abbreviation PDF stands for
1. Printable Document File
2. Portable Document File
3. Printable Document Format
4. Portable Document Format
User answer: 2 (Date: 2018-09-23, Time: 20:14:01)
Correct answer: 4

Question ID: 14
Question: First generation computer systems used
1. Transistors
2. Vacuum tubes
3. Magnetic cores
4. Silicon chips
User answer: 3 (Date: 2018-09-23, Time: 20:14:07)
Correct answer: 2

Question ID: 43
Question: Which of the following is a fixed disk
1. Hard Disks
2. Flash Disks
3. Compact Disks
4. DVDs
User answer: 4 (Date: 2018-09-23, Time: 20:14:12)
Correct answer: 1

Question ID: 51
Question: Which device is used as the standard pointing device in a Graphical User Environment
1. Keyboard
2. Mouse
3. Joystick
4. Track ball
User answer: 1 (Date: 2018-09-23, Time: 20:14:15)
Correct answer: 2

Question ID: 45
Question: Which of the following items are examples of storage devices
1. Floppy Disks
2. CD-ROMs
3. Hard Disks
4. All of the above
User answer: 2 (Date: 2018-09-23, Time: 20:14:20)
Correct answer: 4

Result 2 of exam with ID 3

User Informations: ID: 4, Name: Mary Pangiotou, Username: user3

Questions:

Question ID: 51
Question: Which device is used as the standard pointing device in a Graphical User Environment
1. Keyboard
2. Mouse
3. Joystick
4. Track ball
User answer: 3 (Date: 2018-09-23, Time: 20:14:43)
Correct answer: 2

Question ID: 50
Question: When we look at the cost which of the following computer is most expensive
1. Mainframe Computers
2. Mini Computers
3. Micro Computers
4. Super Computers
User answer: 4 (Date: 2018-09-23, Time: 20:14:46)
Correct answer: 4

Question ID: 27
Question: Which of the following is a central repository for data from various sources within the organization
1. Electronic Health Record
2. Hospital-Wide System
3. Data Warehouse
4. Data Mine
User answer: 1 (Date: 2018-09-23, Time: 20:14:51)
Correct answer: 3

Question ID: 46

Question: What ASCII stand for
1. American Stable Code for International Interchange
2. American Standard Case for International Interchange
3. American Standard Code for Information Interchange
4. American Standard Code for for Interchange Information
User answer: 2 (Date: 2018-09-23, Time: 20:14:55)
Correct answer: 3

Question ID: 23
Question: Spamming is the act of
1. Sending unsolicited messages
2. Blocking a website
3. Internet time theft
4. Talking a person through the cyberspace
User answer: 3 (Date: 2018-09-23, Time: 20:14:59)
Correct answer: 1

Exam Center Informations:
ID: 3, Name: Thessaloniki, Address: Aristotelous 33

Exam informations:
ID: 7, Date: 2018-09-25, Time: 23:20:00

Result 1 of exam with ID 7

User Informations: ID: 10, Name: Hellen Drosou, Username: hellend

Questions:

Question ID: 2
Question: The abbreviation PDF stands for
1. Printable Document File

2. Portable Document File
3. Printable Document Format
4. Portable Document Format
User answer: 3 (Date: 2018-09-25, Time: 21:13:46)
Correct answer: 4

Question ID: 12
Question: The brain of a computer is
1. CPU
2. CD
3. Floppy disc
4. Megabyte
User answer: 1 (Date: 2018-09-25, Time: 21:14:37)
Correct answer: 1

Question ID: 13
Question: VIRUS stands for
1. Very Important Resource Under Search
2. Virtual Information Resource Under Seize
3. Verify Interchange Result until Source
4. Very Important Record User Searched
User answer: 3 (Date: 2018-09-25, Time: 21:14:17)
Correct answer: 2

Question ID: 8
Question: Which of the following is not an example of Operating System
1. Windows 98
2. Fox-Pro
3. Microsoft Office
4. Linux
User answer: 3 (Date: 2018-09-25, Time: 21:14:23)
Correct answer: 2

Question ID: 36
Question: The human-computer interface that allows for data to be entered into and retrieved from a system is known as the
1. Supporting Layer
2. Presentation Layer
3. Connection Layer
4. Infrastructure Layer
User answer: 3 (Date: 2018-09-25, Time: 21:14:33)
Correct answer: 2

Result 2 of exam with ID 7

User Informations: ID: 13, Name: Elena Papagianopoulou, Username: elena1234

Questions:

Question ID: 42
Question: Which of the following is not a category of computer based on size
1. Mainframe Computer
2. Micro Computer
3. Mini Computer
4. Digital Computer
User answer: 2 (Date: 2018-10-01, Time: 05:18:19)
Correct answer: 4

Question ID: 27
Question: Which of the following is a central repository for data from various sources within the organization
1. Electronic Health Record
2. Hospital-Wide System
3. Data Warehouse
4. Data Mine
User answer: 2 (Date: 2018-10-01, Time: 05:18:40)
Correct answer: 3

Question ID: 3
Question: Which is not consisted in a processor
1. ALU
2. CU
3. Memory
4. Registers
User answer: 3 (Date: 2018-10-01, Time: 05:18:26)
Correct answer: 3

Question ID: 16
Question: The term bugs refers to
1. encoding of data
2. transmission of data

| | |
|-----------------|--|
| Question ID: | 27 |
| Question: | Which of the following is a central repository for data from various sources within the organization |
| | 1. Electronic Health Record |
| | 2. Hospital-Wide System |
| | 3. Data Warehouse |
| | 4. Data Mine |
| User answer: | 2 (Date: 2018-10-01, Time: 05:18:40) |
| Correct answer: | 3 |
| Question ID: | 3 |
| Question: | Which is not consisted in a processor |
| | 1. ALU |
| | 2. CU |
| | 3. Memory |
| | 4. Registers |
| User answer: | 3 (Date: 2018-10-01, Time: 05:18:26) |
| Correct answer: | 3 |
| Question ID: | 16 |
| Question: | The term bugs refers to |
| | 1. encoding of data |
| | 2. transmission of data |
| | 3. errors in a computer program |
| | 4. decoding of data |
| User answer: | 2 (Date: 2018-10-01, Time: 05:18:32) |
| Correct answer: | 3 |
| Question ID: | 48 |
| Question: | In which language is source program written |
| | 1. English |
| | 2. Symbolic |
| | 3. High Level |
| | 4. Temporary |
| User answer: | 3 (Date: 2018-10-01, Time: 05:18:52) |
| Correct answer: | 3 |

Direct from web service (JSON format):

```

< --> local:8080/ExamsResultsService/webresources/results/getAll
Ερωτήσεις Bookmarks Καλωσορίστε στο TEI Αθήνας Τμήμα Μηχανικών TEIATH Open eClass TEI of Athens Webm UNIVERSITY STUDEN Άλλοι σελοδοκείτες

{"address": "Ποσειδών 41", "ec_id": 1, "examResults": [{"date": "2018-09-08", "ex_id": 1, "time": "19:08:00", "userResults": [{"examQuestions": [{"answer1": "Sending unsolicited messages", "answer2": "Blocking a website", "answer3": "Internet time theft", "answer4": "talking a person through the cyberspace", "correct": 1, "q_id": 23, "question": "Scanning is the act of", "username": 1, "date": "2018-09-08", "ulime": "19:08:15"}, {"answer1": "RGB/CMY", "answer2": "CMYK", "answer3": "YUV/HSV", "answer4": "YUV/HMN", "correct": 1, "q_id": 11, "question": "Which of the following is not a computer language", "username": 2, "date": "2018-09-08", "ulime": "19:08:30"}, {"answer1": "Conceptual Model", "answer2": "Physical Model", "answer3": "Context Model", "answer4": "Logical Model", "correct": 1, "q_id": 26, "question": "When designing a relational database, the first step of data modeling is known as the", "username": 3, "date": "2018-09-08", "ulime": "19:08:45"}, {"answer1": "enters data into computer", "answer2": "repairs a computer", "answer3": "changes flow chart into instructions", "answer4": "writes programs", "correct": 4, "q_id": 15, "question": "A computer programmer", "username": 4, "date": "2018-09-08", "ulime": "19:08:47"}, {"answer1": "Structured Data", "answer2": "Data Integrity", "answer3": "Quantitative Data", "answer4": "Continuous Data", "correct": 1, "q_id": 37, "question": "Discrete data that is entered into formatted fields rather than entered in free text is known as", "username": 1, "date": "2018-09-08", "ulime": "19:08:50"}, {"name": "Marina Akropoulou", "u_id": 1, "uname": "user1"}]}], "date": "2018-09-23", "ex_id": 1, "time": "20:00:00", "userResults": [{"examQuestions": [{"answer1": "Printable Document File", "answer2": "Portable Document File", "answer3": "Printable Document Format", "answer4": "Portable Document Format", "correct": 4, "q_id": 2, "question": "The abbreviation PDF stands for", "username": 2, "date": "2018-09-23", "ulime": "20:14:01"}, {"answer1": "Transistors", "answer2": "Vacuum tubes", "answer3": "Magnetic cores", "answer4": "Silicon chips", "correct": 2, "q_id": 14, "question": "First generation computer systems used", "username": 3, "date": "2018-09-23", "ulime": "20:14:07"}, {"answer1": "Hard Disks", "answer2": "Flash Disks", "answer3": "Compact Disks", "answer4": "ROMs", "correct": 1, "q_id": 41, "question": "Which of the following is a fixed disk", "username": 4, "date": "2018-09-23", "ulime": "20:14:12"}, {"answer1": "Keyboard", "answer2": "Mouse", "answer3": "Joystick", "answer4": "Track ball", "correct": 2, "q_id": 51, "question": "Which device is used as the standard pointing device in a graphical user environment", "username": 1, "date": "2018-09-23", "ulime": "20:14:15"}, {"answer1": "Floppy Disks", "answer2": "Hard disks", "answer3": "all of the above", "correct": 4, "q_id": 45, "question": "Which of the following items are examples of storage devices", "username": 2, "date": "2018-09-23", "ulime": "20:14:28"}, {"name": "George Konstant", "u_id": 3, "uname": "user3"}, {"examQuestions": [{"answer1": "Keyboard", "answer2": "Mouse", "answer3": "Joystick", "answer4": "Track ball", "correct": 2, "q_id": 51, "question": "Which device is used as the standard pointing device in a graphical user environment", "username": 3, "date": "2018-09-23", "ulime": "20:14:41"}, {"answer1": "Mainframe Computers", "answer2": "Mini Computers", "answer3": "Micro Computers", "answer4": "Super Computers", "correct": 4, "q_id": 18, "question": "When we look at the cost which of the following computer is most expensive", "username": 4, "date": "2018-09-23", "ulime": "20:14:46"}, {"answer1": "Electronic Health Record", "answer2": "Hospital-Wide System", "answer3": "Data Warehouse", "answer4": "Data Mine", "correct": 3, "q_id": 12, "question": "Which of the following is a central repository for data from various sources within the organization", "username": 1, "date": "2018-09-23", "ulime": "20:14:53"}, {"answer1": "American Stable Code for International Interchange", "answer2": "American Standard Case for International Interchange", "answer3": "American Standard Code for Information Interchange", "answer4": "American Standard Code for for Interchange Information", "correct": 3, "q_id": 46, "question": "What ASCII stand for", "username": 2, "date": "2018-09-23", "ulime": "20:14:59"}, {"answer1": "Sending unsolicited messages", "answer2": "Blocking a website", "answer3": "Internet time theft", "answer4": "talking a person through the cyberspace", "correct": 1, "q_id": 23, "question": "Scanning is the act of", "username": 3, "date": "2018-09-23", "ulime": "20:14:59"}, {"name": "Vary Pangelidou", "u_id": 4, "uname": "user4"}]}], "address": "Aristotelous 33", "ec_id": 13, "examResults": [{"date": "2018-09-25", "ex_id": 7, "time": "21:28:00", "userResults": [{"examQuestions": [{"answer1": "Printable Document File", "answer2": "Portable Document File", "answer3": "Printable Document Format", "answer4": "Portable Document Format", "correct": 4, "q_id": 12, "question": "The abbreviation PDF stands for", "username": 1, "date": "2018-09-25", "ulime": "21:13:04"}, {"answer1": "CPU", "answer2": "CD", "answer3": "Floppy disk", "answer4": "Megabyte", "correct": 1, "q_id": 12, "question": "The brain of a computer is", "username": 1, "date": "2018-09-25", "ulime": "21:14:37"}, {"answer1": "Very Important Resource Under Search", "answer2": "Virtual Information Resource Under Seize", "answer3": "Verify Interchange Result until Source", "answer4": "Very Important Record User Searched", "correct": 2, "q_id": 13, "question": "VIRUS stands for", "username": 3, "date": "2018-09-25", "ulime": "21:14:37"}, {"answer1": "Windows 98", "answer2": "Fox-Pro", "answer3": "Microsoft Office", "answer4": "Linux", "correct": 2, "q_id": 8, "question": "Which of the following is not an example of Operating System", "username": 3, "date": "2018-09-25", "ulime": "21:14:23"}, {"answer1": "Supporting Layer", "answer2": "Presentation Layer", "answer3": "Connection Layer", "answer4": "Infrastructure Layer", "correct": 2, "q_id": 16, "question": "The human-computer interface that allows for data to be entered into and retrieved from a system is known as the", "username": 3, "date": "2018-09-25", "ulime": "21:14:33"}, {"name": "Helian Brown", "u_id": 18, "uname": "Helian"}, {"examQuestions": [{"answer1": "Mainframe Computer", "answer2": "Micro Computer", "answer3": "Mini Computer", "answer4": "Digital Computer", "correct": 4, "q_id": 42, "question": "Which of the following is not a category of computer based on size", "username": 2, "date": "2018-10-01", "ulime": "05:18:10"}, {"answer1": "Electronic Health Record", "answer2": "Hospital-Wide System", "answer3": "Data Warehouse", "answer4": "Data Mine", "correct": 3, "q_id": 12, "question": "Which of the following is a central repository for data from various sources within the organization", "username": 12, "date": "2018-10-01", "ulime": "05:18:48"}, {"answer1": "ALU", "answer2": "CU", "answer3": "Memory", "answer4": "Registers", "correct": 3, "q_id": 3, "question": "Which is not consisted in a processor", "username": 3, "date": "2018-10-01", "ulime": "05:18:26"}, {"answer1": "encoding of data", "answer2": "transmission of data", "answer3": "errors in a computer program", "correct": 3, "q_id": 18, "question": "The term bugs refers to", "username": 2, "date": "2018-10-01", "ulime": "05:18:22"}, {"answer1": "English", "answer2": "Symbolic", "answer3": "High Level", "answer4": "Temporary", "correct": 3, "q_id": 48, "question": "In which language is source program written", "username": 3, "date": "2018-10-01", "ulime": "05:18:52"}, {"name": "Elena Pangelidou", "u_id": 19, "uname": "Elena"}]}]}]}]

```

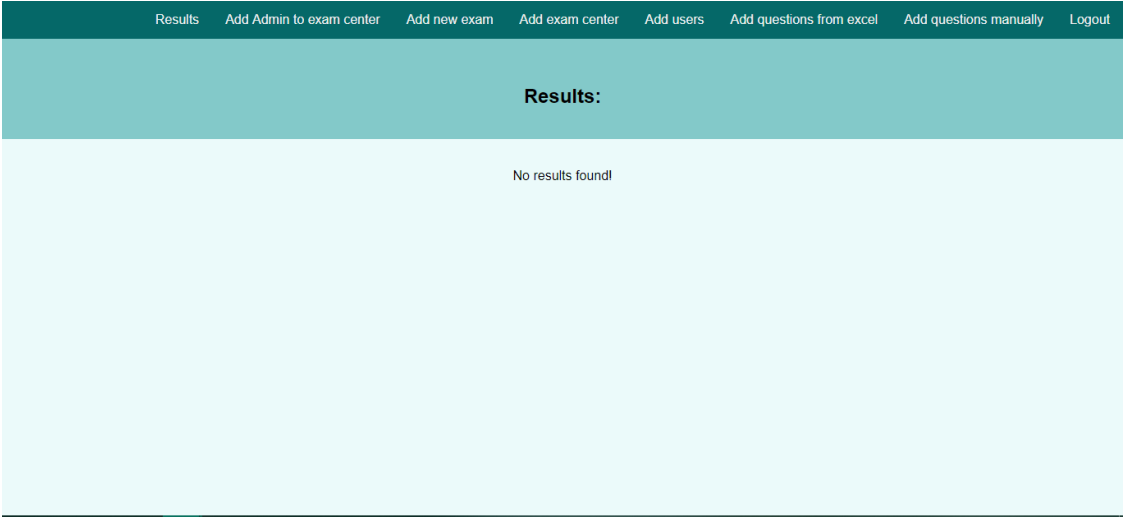
View results of a single examination center:

| Results | Add Admin to exam center | Add new exam | Add exam center | Add users | Add questions from excel | Add questions manually | Logout |
|---------|--------------------------|--------------|-----------------|-----------|--------------------------|------------------------|--------|
|---------|--------------------------|--------------|-----------------|-----------|--------------------------|------------------------|--------|

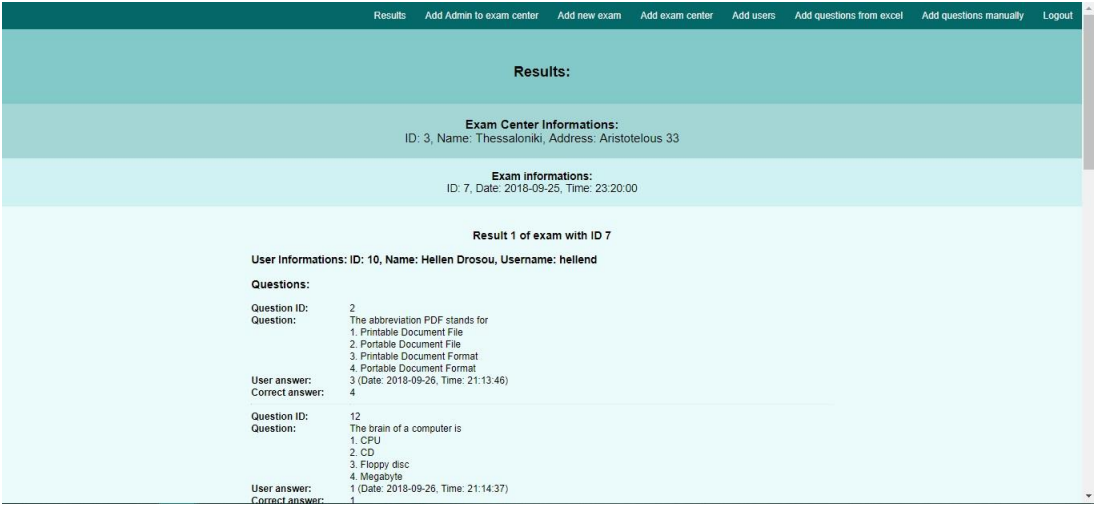
- Get all results
- Get results of exam center with ID:
- Get results of exam center with ID: in date:
- Get results of user with ID:

Submit

If the examination center code does not correspond to an examination center or is blank, the result is:



If the center with the given code exists the result has the following form:



| | |
|---|--|
| Question ID: | 13 |
| Question: | VIRUS stands for 1. Very Important Resource Under Search 2. Virtual Information Resource Under Seize 3. Verify Interchange Result until Source 4. Very Important Record User Searched |
| User answer: | 3 (Date: 2018-09-26, Time: 21:14:17) |
| Correct answer: | 2 |
| Question ID: | 8 |
| Question: | Which of the following is not an example of Operating System 1. Windows 98 2. Fox-Pro 3. Microsoft Office 4. Linux |
| User answer: | 3 (Date: 2018-09-26, Time: 21:14:23) |
| Correct answer: | 2 |
| Question ID: | 36 |
| Question: | The human-computer interface that allows for data to be entered into and retrieved from a system is known as the 1. Supporting Layer 2. Presentation Layer 3. Connection Layer 4. Infrastructure Layer |
| User answer: | 3 (Date: 2018-09-26, Time: 21:14:33) |
| Correct answer: | 2 |
| Result 2 of exam with ID 7 | |
| User Informations: ID: 13, Name: Elena Papagianopoulou, Username: elena1234 | |
| Questions: | |
| Question ID: | 42 |
| Question: | Which of the following is not a category of computer based on size 1. Mainframe Computer 2. Micro Computer |

| | |
|-----------------|---|
| Question ID: | 3 |
| Question: | Which of the following is not a category of computer based on size 1. Mainframe Computer 2. Micro Computer |
| User answer: | 3 (Date: 2018-10-01, Time: 05:18:19) |
| Correct answer: | 4 |
| Question ID: | 27 |
| Question: | Which of the following is a central repository for data from various sources within the organization 1. Electronic Health Record 2. Hospital-Wide System 3. Data Warehouse 4. Data Mine |
| User answer: | 2 (Date: 2018-10-01, Time: 05:18:40) |
| Correct answer: | 3 |
| Question ID: | 3 |
| Question: | Which is not consisted in a processor 1. ALU 2. CU 3. Memory 4. Registers |
| User answer: | 3 (Date: 2018-10-01, Time: 05:18:26) |
| Correct answer: | 3 |
| Question ID: | 16 |
| Question: | The term bugs refers to 1. encoding of data 2. transmission of data 3. errors in a computer program 4. decoding of data |
| User answer: | 2 (Date: 2018-10-01, Time: 05:18:32) |
| Correct answer: | 3 |
| Question ID: | 48 |
| Question: | In which language is source program written 1. English 2. Symbolic 3. High Level 4. Temporary |
| User answer: | 3 (Date: 2018-10-01, Time: 05:18:52) |
| Correct answer: | 3 |

Direct from web service (JSON format):

```
localhost:8080/ExamsResultsService/webresources/results/examcenter/3
Εργασίες Bookmarks Καλωσορίστε στο TEI Αθήνας Τμήμα Μηχανικών TEIATH Open eClass TEI of Athens Webm UNIVERSITY STUDEN
{"address": "Aristotelous 33", "ec_id": 3, "examResults": [{"date": "2018-09-25", "ex_id": 7, "time": "23:20:00", "userResults": [{"examQuestions": [{"answer1": "Printable Document File", "answer2": "Portable Document File", "answer3": "Printable Document Format", "answer4": "Portable Document Format", "correct": 4, "q_id": 2, "question": "The abbreviation PDF stands for", "uAnswer": 3, "uDate": "2018-09-26", "uTime": "21:13:46"}, {"answer1": "CPU", "answer2": "CD", "answer3": "Floppy disc", "answer4": "Megabyte", "correct": 1, "q_id": 12, "question": "The brain of a computer is", "uAnswer": 1, "uDate": "2018-09-26", "uTime": "21:14:37"}, {"answer1": "Very Important Resource Under Search", "answer2": "Virtual Information Resource Under Seize", "answer3": "Verify Interchange Result until Source", "answer4": "Very Important Record User Searched", "correct": 2, "q_id": 13, "question": "VIRUS stands for", "uAnswer": 3, "uDate": "2018-09-26", "uTime": "21:14:17"}, {"answer1": "Windows 98", "answer2": "Fox-Pro", "answer3": "Microsoft Office", "answer4": "Linux", "correct": 2, "q_id": 18, "question": "Which of the following is not an example of Operating System", "uAnswer": 3, "uDate": "2018-09-26", "uTime": "21:14:23"}, {"answer1": "Supporting Layer", "answer2": "Presentation Layer", "answer3": "Connection Layer", "answer4": "Infrastructure Layer", "correct": 2, "q_id": 36, "question": "The human-computer interface that allows for data to be entered into and retrieved from a system is known as the", "uAnswer": 3, "uDate": "2018-09-26", "uTime": "21:14:33"}, {"name": "Hellen Drosou", "u_id": 18, "uname": "hellend"}, {"examQuestions": [{"answer1": "Mainframe Computer", "answer2": "Micro Computer", "answer3": "Mini Computer", "answer4": "Digital Computer", "correct": 4, "q_id": 42, "question": "Which of the following is not a category of computer based on size", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:19"}, {"answer1": "Electronic Health Record", "answer2": "Hospital-Wide System", "answer3": "Data Warehouse", "answer4": "Data Mine", "correct": 3, "q_id": 27, "question": "Which of the following is a central repository for data from various sources within the organization", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:40"}, {"answer1": "ALU", "answer2": "CU", "answer3": "Memory", "answer4": "Registers", "correct": 3, "q_id": 3, "question": "Which is not consisted in a processor", "uAnswer": 3, "uDate": "2018-10-01", "uTime": "05:18:26"}, {"answer1": "encoding of data", "answer2": "transmission of data", "answer3": "errors in a computer program", "answer4": "decoding of data", "correct": 3, "q_id": 16, "question": "The term bugs refers to", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:32"}, {"answer1": "English", "answer2": "Symbolic", "answer3": "High Level", "answer4": "Temporary", "correct": 3, "q_id": 48, "question": "In which language is source program written", "uAnswer": 3, "uDate": "2018-10-01", "uTime": "05:18:52"}]}], "name": "Elena Papagianopoulou", "u_id": 13, "uname": "elena1234"}]}}]
```


View results for a specific examination center on a specific date:

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

☐ Get all results

☐ Get results of exam center with ID:

☒ Get results of exam center with ID: in date:

☐ Get results of user with ID:

As in the previous case, if the input data is not correct the result will be:

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Results:

No results found!

If they are correct, the following appears:

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Results:

Exam Center Informations:
ID: 1, Name: Ilioupoli, Address: Posidonos 41

Exam informations:
ID: 1, Date: 2018-09-06, Time: 19:00:00

Result 1 of exam with ID 1

User Informations: ID: 1, Name: Marina Akrivopoulou, Username: user1

Questions:

Question ID: 23
Question: Spamming is the act of
1. Sending unsolicited messages
2. Blocking a website
3. Internet time theft
4. Talking a person through the cyberspace
User answer: 1 (Date: 2018-09-06, Time: 19:08:35)
Correct answer: 1

Question ID: 11
Question: Which of the following is not a computer language
1. BASIC
2. COBOL
3. LOTUS
4. FORTRAN
User answer: 2 (Date: 2018-09-06, Time: 19:08:39)
Correct answer: 3

| | |
|-----------------|---|
| User answer: | 1 (Date: 2018-09-06, Time: 19:08:35) |
| Correct answer: | 1 |
| Question ID: | 11 |
| Question: | Which of the following is not a computer language 1. BASIC 2. COBOL 3. LOTUS 4. FORTRAN |
| User answer: | 2 (Date: 2018-09-06, Time: 19:08:39) |
| Correct answer: | 3 |
| Question ID: | 28 |
| Question: | When designing a relational database, the first step of data modeling is known as the 1. Conceptual Model 2. Physical Model 3. Context Model 4. Logical Model |
| User answer: | 3 (Date: 2018-09-06, Time: 19:08:44) |
| Correct answer: | 1 |
| Question ID: | 15 |
| Question: | A computer programmer 1. enters data into computer 2. repairs a Computer 3. changes flow chart into instructions 4. writes programs |
| User answer: | 4 (Date: 2018-09-06, Time: 19:08:47) |
| Correct answer: | 4 |
| Question ID: | 37 |
| Question: | Discrete data that is entered into formatted fields rather than entered in free text is known as 1. Structured Data 2. Data integrity 3. Quantitative Data 4. Continuous Data |
| User answer: | 1 (Date: 2018-09-06, Time: 19:08:50) |
| Correct answer: | 1 |

Direct from web service (JSON format):

```
localhost:8080/ExamsResultsService/webresources/results/examcenter/1?date=2018-09-06
Εργασίες Bookmarks Καλωσορίστε στο TEI Αθήνας Τμήμα Μηχανικών TEIATH Open eClass TEI of Athens Webm UNIVERSITY STUDEN
{"address":"Posidonos 41","ec_id":1,"examResults":[{"date":"2018-09-06","ex_id":1,"time":"19:00:00","userResults":[{"examQuestions":[{"answer1":"Sending unsolicited messages","answer2":"Blocking a website","answer3":"Internet time theft","answer4":"Talking a person through the cyberspace","correct":1,"q_id":23,"question":"Spamming is the act of","uAnswer":1,"uDate":"2018-09-06","uTime":"19:08:35"},{"answer1":"BASIC","answer2":"COBOL","answer3":"LOTUS","answer4":"FORTRAN","correct":3,"q_id":11,"question":"Which of the following is not a computer language","uAnswer":2,"uDate":"2018-09-06","uTime":"19:08:39"},{"answer1":"Conceptual Model","answer2":"Physical Model","answer3":"Context Model","answer4":"Logical Model","correct":1,"q_id":26,"question":"When designing a relational database, the first step of data modeling is known as the","uAnswer":3,"uDate":"2018-09-06","uTime":"19:08:44"},{"answer1":"enters data into computer","answer2":"repairs a Computer","answer3":"changes flow chart into instructions","answer4":"writes programs","correct":4,"q_id":15,"question":"A computer programmer","uAnswer":4,"uDate":"2018-09-06","uTime":"19:08:47"},{"answer1":"Structured Data","answer2":"Data Integrity","answer3":"Quantitative Data","answer4":"Continuous Data","correct":1,"q_id":37,"question":"Discrete data that is entered into formatted fields rather than entered in free text is known as","uAnswer":1,"uDate":"2018-09-06","uTime":"19:08:50"}],"name":"Marina Akrivopoulou","u_id":1,"uname":"user1"}]},"name":"Ilioupoli"}
```

View single user results based on their ID:

Results Add Admin to exam center Add new exam Add exam center Add users Add questions from excel Add questions manually Logout

☐ Get all results
☐ Get results of exam center with ID:
☐ Get results of exam center with ID: in date:
☒ Get results of user with ID:

Submit

The same applies as before, in the case of input data error.

If the user ID is correct, the result is as follows:

[Results](#) [Add Admin to exam center](#) [Add new exam](#) [Add exam center](#) [Add users](#) [Add questions from excel](#) [Add questions manually](#) [Logout](#)

Results:

Exam Center Informations:
ID: 3, Name: Thessaloniki, Address: Aristotelous 33

Exam informations:
ID: 7, Date: 2018-09-25, Time: 23:20:00

Result 1 of exam with ID 7

User Informations: ID: 13, Name: Elena Papagianopoulou, Username: elena1234

Questions:

Question ID: 42
Question: Which of the following is not a category of computer based on size
1. Mainframe Computer
2. Micro Computer
3. Mini Computer
4. Digital Computer
User answer: 2 (Date: 2018-10-01, Time: 05:18:19)
Correct answer: 4

Question ID: 27
Question: Which of the following is a central repository for data from various sources within the organization
1. Electronic Health Record
2. Hospital-Wide System
3. Data Warehouse
4. Data Mine
User answer: 2 (Date: 2018-10-01, Time: 05:18:40)
Correct answer: 3

User answer: 2 (Date: 2018-10-01, Time: 05:18:19)
Correct answer: 4

Question ID: 27
Question: Which of the following is a central repository for data from various sources within the organization
1. Electronic Health Record
2. Hospital-Wide System
3. Data Warehouse
4. Data Mine
User answer: 2 (Date: 2018-10-01, Time: 05:18:40)
Correct answer: 3

Question ID: 3
Question: Which is not consisted in a processor
1. ALU
2. CU
3. Memory
4. Registers
User answer: 3 (Date: 2018-10-01, Time: 05:18:26)
Correct answer: 3

Question ID: 16
Question: The term bugs refers to
1. encoding of data
2. transmission of data
3. errors in a computer program
4. decoding of data
User answer: 2 (Date: 2018-10-01, Time: 05:18:32)
Correct answer: 3

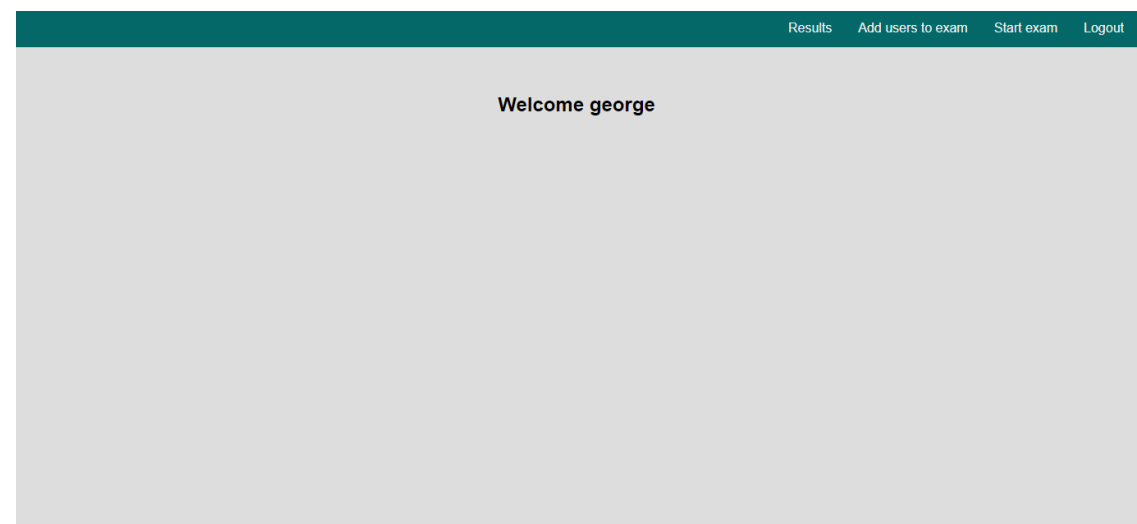
Question ID: 48
Question: In which language is source program written
1. English
2. Symbolic
3. High Level
4. Temporary
User answer: 3 (Date: 2018-10-01, Time: 05:18:52)
Correct answer: 3

Direct from web service (JSON format):

```
localhost:8080/ExamsResultsService/webresources/results/user/13
Εργασίες Bookmarks Καλωσορίστε στο TEI Αθηνών Τμήμα Μηχανικών TEIATH Open eClass TEI of Athens Webm UNIVERSITY STUDEN
{"address": "Aristotelous 33", "ec_id": 3, "examResults": [{"date": "2018-09-25", "ex_id": 7, "time": "23:20:00", "userResults": [{"examQuestions": [{"answer1": "Mainframe Computer", "answer2": "Micro Computer", "answer3": "Mini Computer", "answer4": "Digital Computer", "correct": 4, "q_id": 42, "question": "Which of the following is not a category of computer based on size", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:19"}, {"answer1": "Electronic Health Record", "answer2": "Hospital-Wide System", "answer3": "Data Warehouse", "answer4": "Data Mine", "correct": 3, "q_id": 27, "question": "Which of the following is a central repository for data from various sources within the organization", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:40"}, {"answer1": "ALU", "answer2": "CU", "answer3": "Memory", "answer4": "Registers", "correct": 3, "q_id": 3, "question": "Which is not consisted in a processor", "uAnswer": 3, "uDate": "2018-10-01", "uTime": "05:18:26"}, {"answer1": "encoding of data", "answer2": "transmission of data", "answer3": "errors in a computer program", "answer4": "decoding of data", "correct": 3, "q_id": 16, "question": "The term bugs refers to", "uAnswer": 2, "uDate": "2018-10-01", "uTime": "05:18:32"}, {"answer1": "English", "answer2": "Symbolic", "answer3": "High Level", "answer4": "Temporary", "correct": 3, "q_id": 48, "question": "In which language is source program written", "uAnswer": 3, "uDate": "2018-10-01", "uTime": "05:18:52"}]}], "name": "Elena Papagianopoulou", "u_id": 13, "uname": "elena1234"}], "name": "Thessaloniki"}
```

These are all options for the System Administrator. Of these, the display of results is a process that also concerns the administrator of the examination center, so it will not be presented again when presenting the options for the examination center administrator.

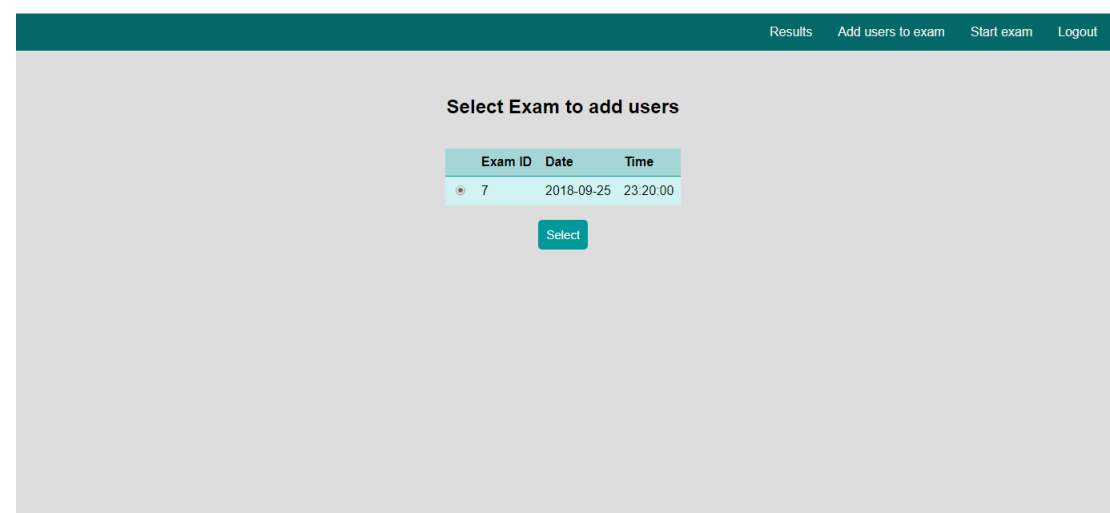
Center Administrator login:



Center Administrator options:

1. Add users to examination:

(allows selection only from exams that are current or later, and in the example there is only one)



ResultsAdd users to examStart examLogout

Select Users for selected exam

| User ID | Name | Username |
|--|-----------------------|-----------|
| <input type="checkbox"/> 6 | Marina Nikolaou | MarNik |
| <input type="checkbox"/> 7 | maria drosou | user7 |
| <input checked="" type="checkbox"/> 10 | Hellen Drosou | hellend |
| <input checked="" type="checkbox"/> 13 | Elena Papagianopoulou | elena1234 |

Submit

ResultsAdd users to examStart examLogout

The following users were added to exam with ID = 7:

| User ID | Name | Username |
|---------|-----------------------|-----------|
| 10 | Hellen Drosou | hellend |
| 13 | Elena Papagianopoulou | elena1234 |

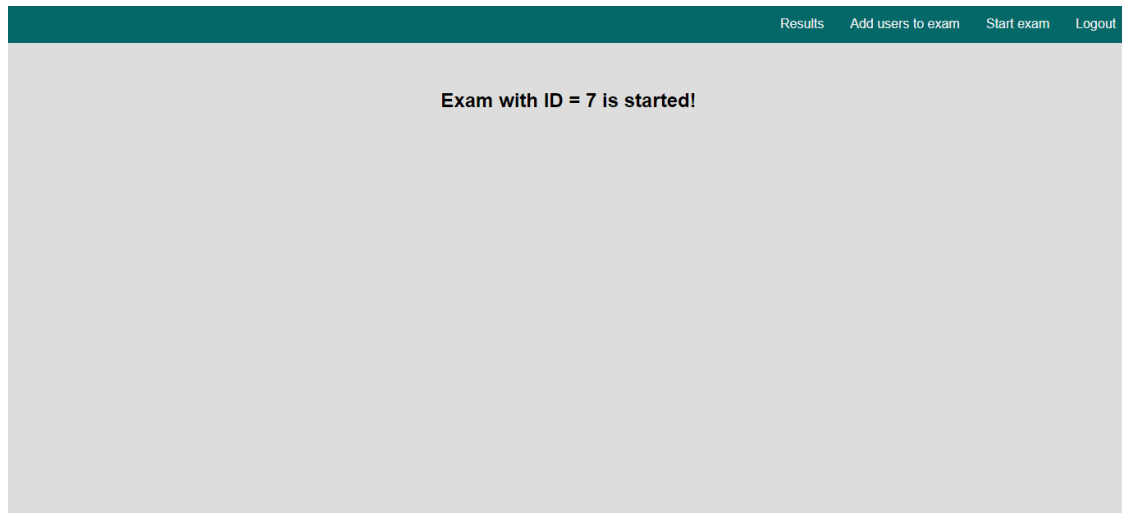
2. Exam start (selection from today's exams):

ResultsAdd users to examStart examLogout

Select Exam to start

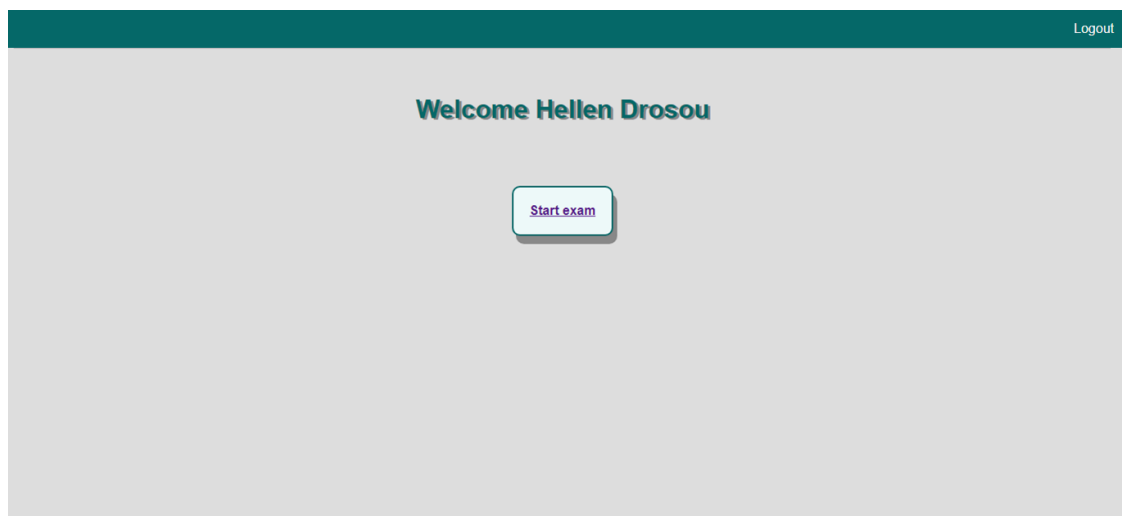
| Exam ID | Date | Time |
|------------------------------------|------------|----------|
| <input checked="" type="radio"/> 7 | 2018-09-25 | 23:20:00 |

Start



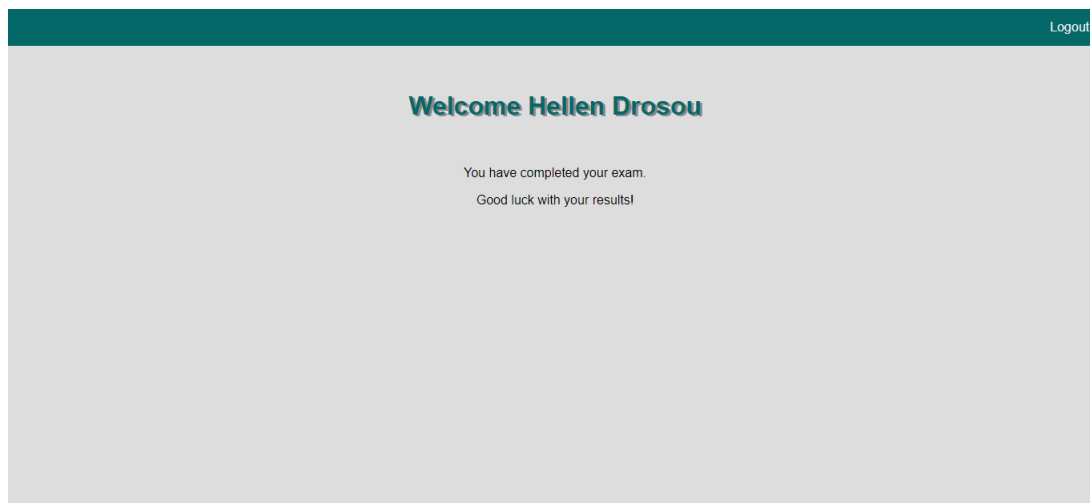
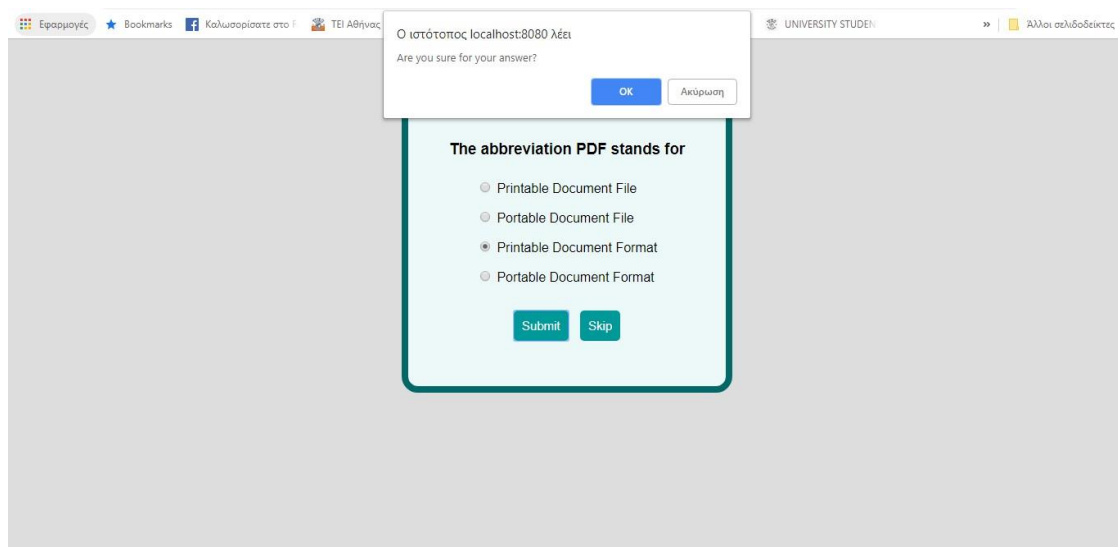
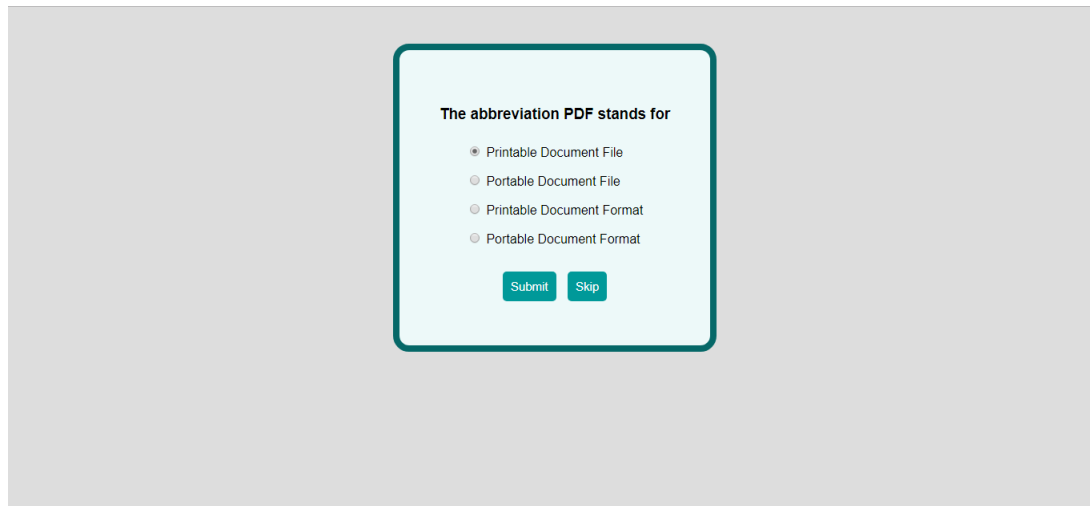
These, in addition to the display of results presented above, are the procedures that the center administrator can do through the web application. Below are the processes the an ordinary user-examinee can do.

Login as user:



Examination with multiple choice questions:

The user, after pressing the "Start exam", answers 5 random questions. If he/she does not want to answer one or more questions the moment they appear, he/she presses "Skip" and the corresponding question appears at the end again to be answered. This is repeated as many times as the user presses "Skip". In each question that the examinee finally answers, a message for confirmation comes out, so that no question is answered by accidentally pressing "Submit", without the desire of the examinee. The examination is completed for the examinee when all 5 questions have been answered.



In addition to storing the user results in the database, a txt file is created with the results which is the user log file and its title is "log_ <username> _ <user id> .txt". The format of the file contents is corresponding to the following:

=====

User ID: 13

Exam ID: 7

=====

Questions:

Question ID: 42

Which of the following is not a category of computer based on size

1. Mainframe Computer
2. Micro Computer
3. Mini Computer
4. Digital Computer

Correct: 4

User answer: 2 (Date: 2018-10-01, Time: 05:18:19)

Question ID: 27

Which of the following is a central repository for data from various sources within the organization

1. Electronic Health Record
2. Hospital-Wide System
3. Data Warehouse
4. Data Mine

Correct: 3

User answer: 2 (Date: 2018-10-01, Time: 05:18:40)

Question ID: 3

Which is not consisted in a processor

1. ALU

- 2. CU
- 3. Memory
- 4. Registers

Correct: 3

User answer: 3 (Date: 2018-10-01, Time: 05:18:26)

Question ID: 16

The term bugs refers to

- 1. encoding of data
- 2. transmission of data
- 3. errors in a computer program
- 4. decoding of data

Correct: 3

User answer: 2 (Date: 2018-10-01, Time: 05:18:32)

Question ID: 48

In which language is source program written

- 1. English
- 2. Symbolic
- 3. High Level
- 4. Temporary

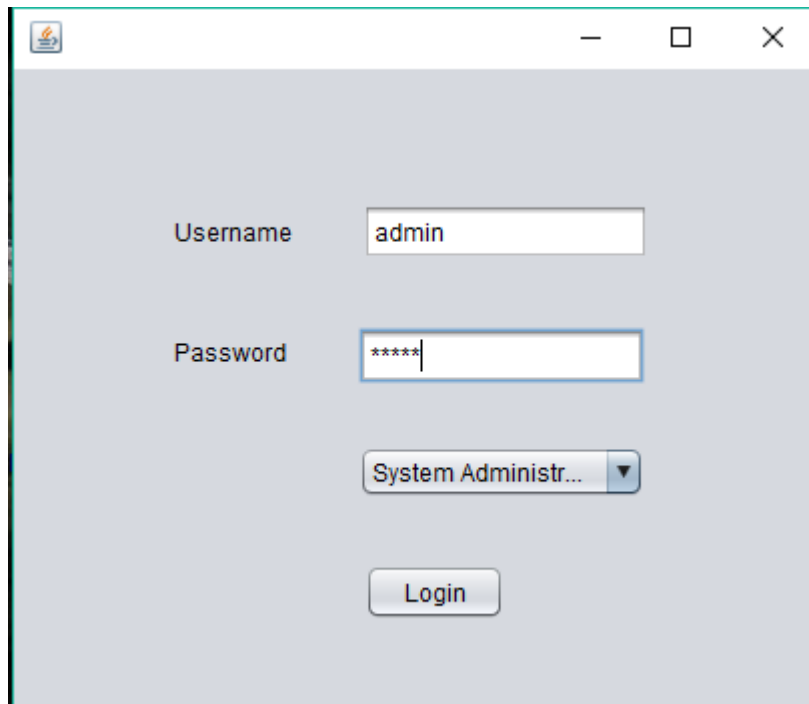
Correct: 3

User answer: 3 (Date: 2018-10-01, Time: 05:18:52)

Desktop app presentation

Initial window for login:

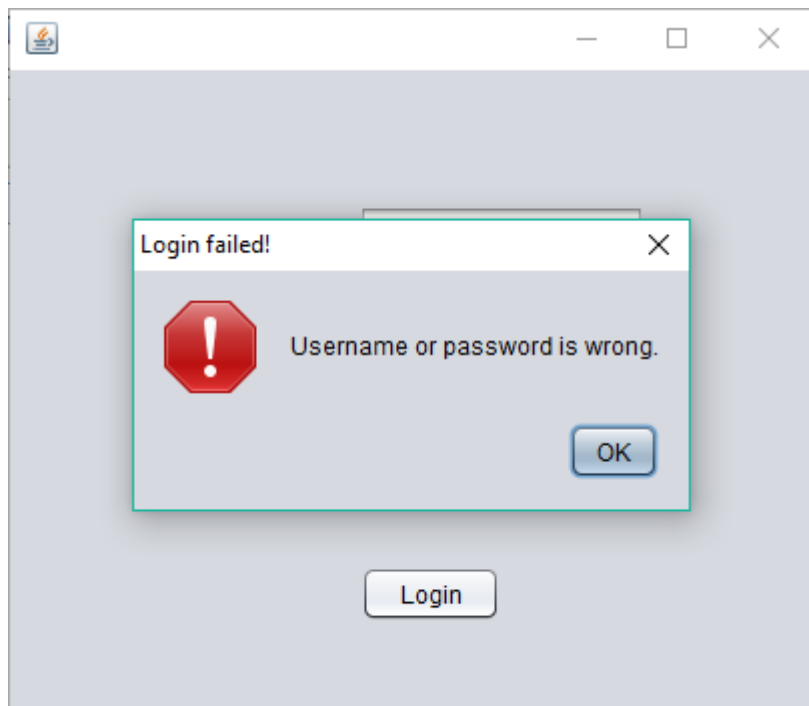
The user enters a username and password and selects a user type (system administrator / center administrator):



A screenshot of a desktop application window titled "Initial window for login". The window has a light gray background and a standard Windows-style title bar with minimize, maximize, and close buttons. The login form contains the following elements:

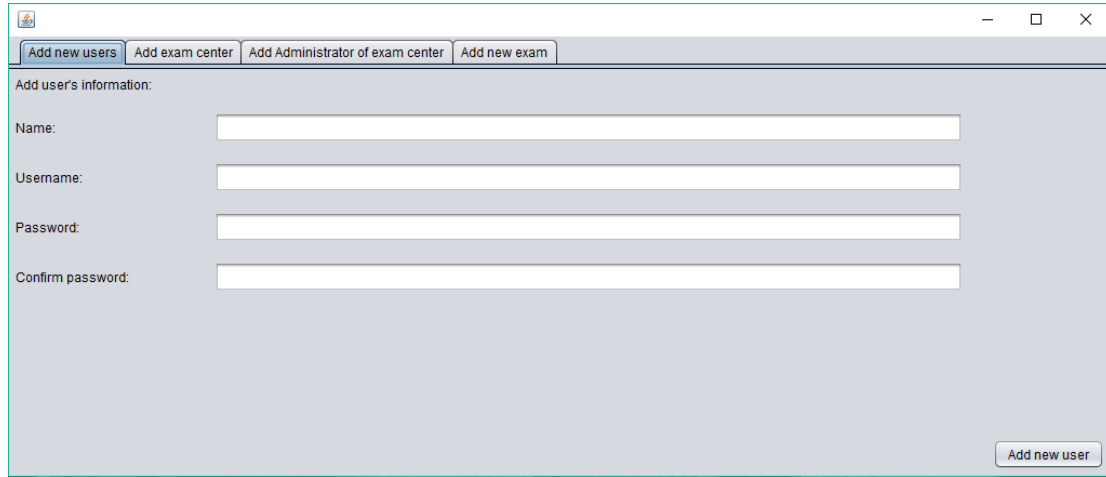
- A "Username" label followed by a text input field containing the text "admin".
- A "Password" label followed by a password input field containing six asterisks "*****".
- A dropdown menu with the text "System Administr..." and a downward arrow.
- A "Login" button located below the dropdown menu.

If the input data are invalid the result is:



System administrator login:

Upon system administrator successful login the previous window closes and a new window opens, which contains the system administrator options (an option-function on each tab of the window):

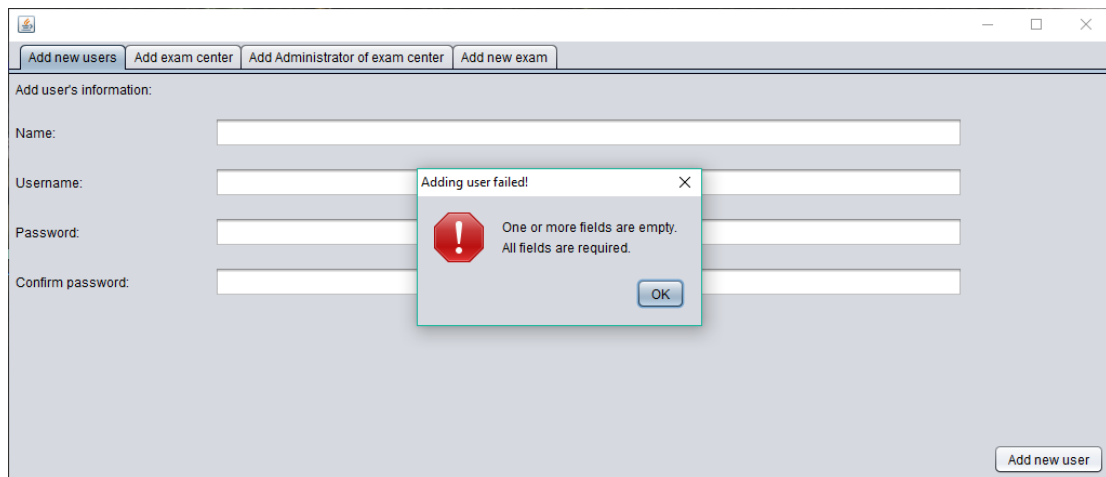


The screenshot shows a web application window with four tabs: 'Add new users', 'Add exam center', 'Add Administrator of exam center', and 'Add new exam'. The 'Add new users' tab is active. Below the tabs, the text 'Add user's information:' is followed by four input fields labeled 'Name:', 'Username:', 'Password:', and 'Confirm password:'. An 'Add new user' button is located in the bottom right corner of the form area.

System administrator options:

1. Add new users

If one or more fields are not filled in the result is:



The screenshot shows the same 'Add new users' tab as before, but with an error message displayed in a modal dialog box. The dialog box has a red octagonal icon with a white exclamation mark and the text: 'Adding user failed! One or more fields are empty. All fields are required.' with an 'OK' button. The background form is partially obscured by the dialog box.

If the username is shared with another user, again the new user is not added and the result is:

The screenshot shows a web application window with a tabbed interface. The active tab is "Add new users". Below the tabs, there is a section titled "Add user's information:" with four input fields: "Name:" (containing "Hellen Dourou"), "Username:" (containing "hellend"), "Password:" (containing four asterisks), and "Confirm password:" (containing four asterisks). A modal dialog box is displayed in the center, titled "Adding user failed!". It contains a red octagonal warning icon with a white exclamation mark and the text "Adding user failed maybe because this Username already exists." There is an "OK" button at the bottom right of the dialog. In the bottom right corner of the application window, there is a button labeled "Add new user".

If the password entered in the password confirmation field is not the same as the password above the result is still negative:

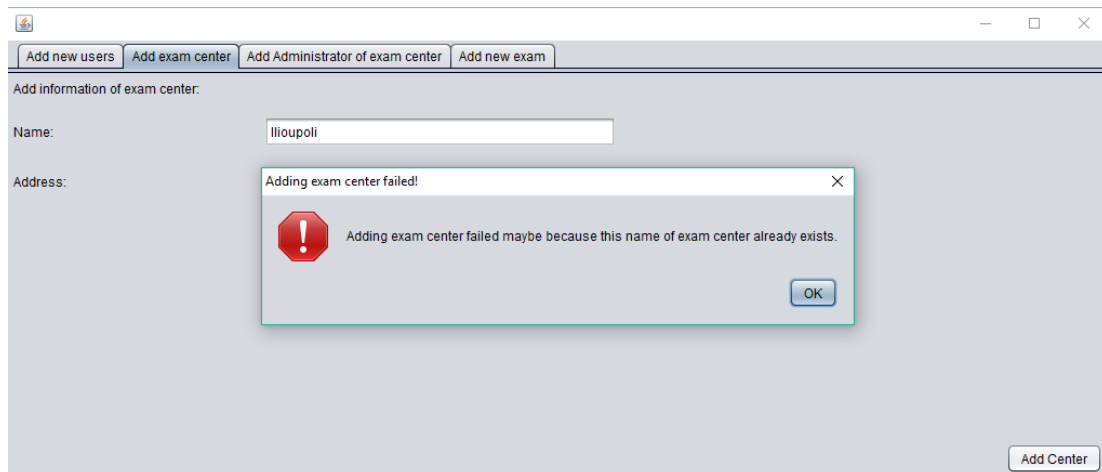
The screenshot shows the same web application window as before, but with the "Username:" field now containing "hellend1". The "Password:" field still has four asterisks, and the "Confirm password:" field now has six asterisks. The modal dialog box is still present, titled "Adding user failed!". It contains a red octagonal warning icon with a white exclamation mark and the text "Password cofnrmation doesn't match password." (note the typo in "cofnrmation"). There is an "OK" button at the bottom right of the dialog. The "Add new user" button is still visible in the bottom right corner.

If all of the above do not apply, then the user is entered into the database and the result is:

The screenshot shows the same web application window. The "Username:" field now contains "hellend1". The "Password:" field has four asterisks, and the "Confirm password:" field also has four asterisks. A new modal dialog box is displayed, titled "User added succesfully!". It contains the text "New user, Hellen Dourou, was added." and an "OK" button at the bottom right. The "Add new user" button is still visible in the bottom right corner.

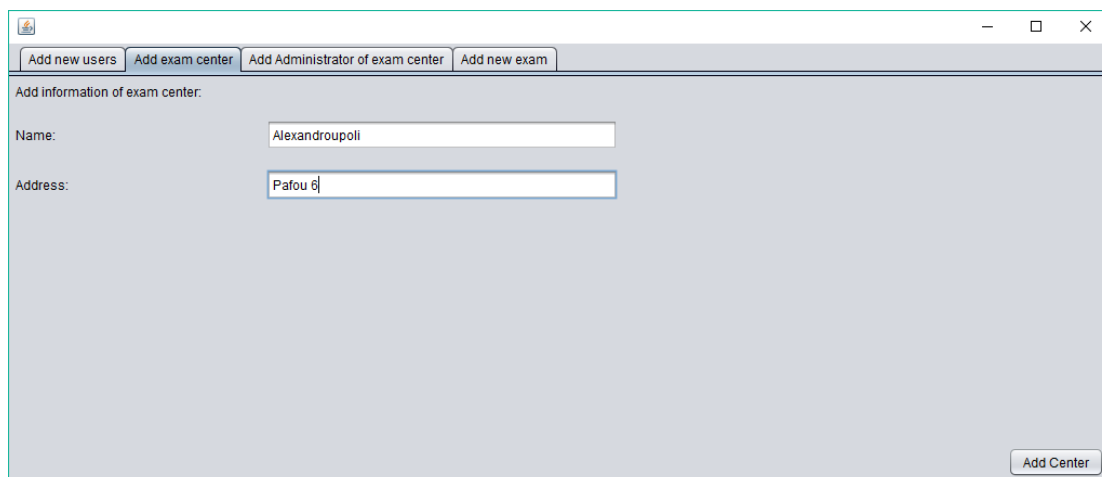
2. Add exam center:

If the name of the examination center already exists, the result is negative:

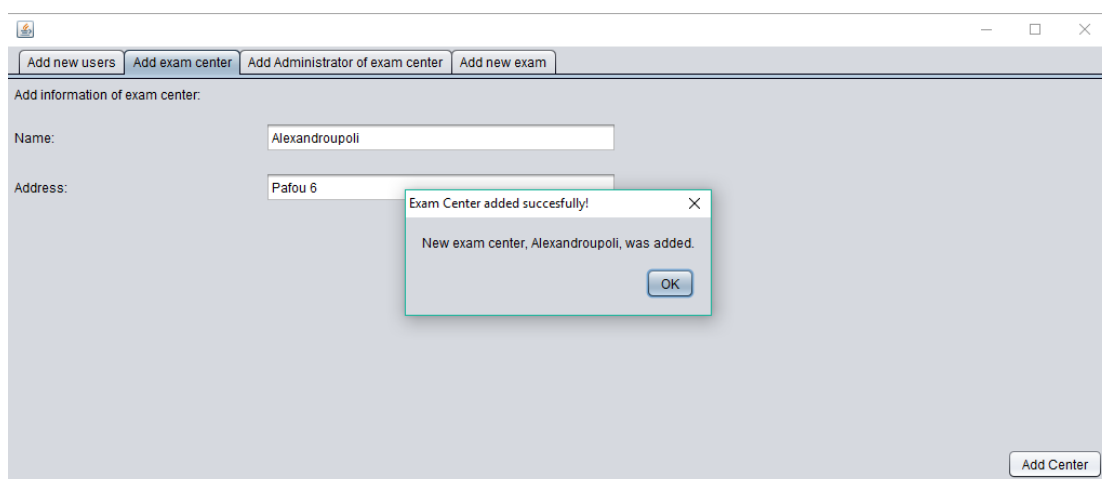


The screenshot shows a web application window with a tabbed interface. The 'Add exam center' tab is active. The form is titled 'Add information of exam center:' and contains two input fields: 'Name:' with the value 'Ilioupoli' and 'Address:' which is empty. A modal dialog box is displayed in the center, titled 'Adding exam center failed!', containing a red warning icon and the text 'Adding exam center failed maybe because this name of exam center already exists.' with an 'OK' button. At the bottom right of the form is an 'Add Center' button.

In case there is no such issue the result is:



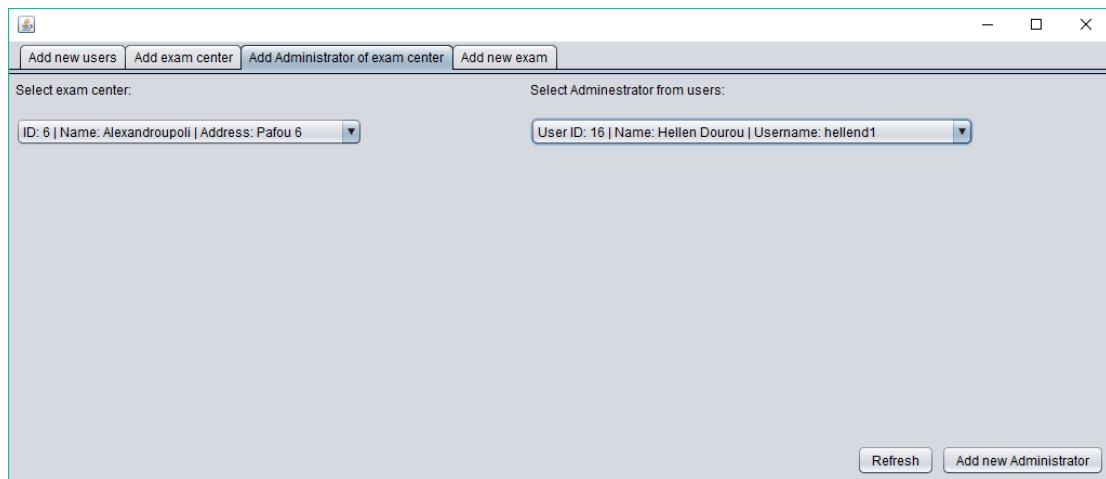
The screenshot shows the same 'Add exam center' form. The 'Name:' field now contains 'Alexandroupoli' and the 'Address:' field contains 'Pafou 6'. The 'Add Center' button is visible at the bottom right.



The screenshot shows the 'Add exam center' form with the same input as the previous one. A modal dialog box is displayed, titled 'Exam Center added successfully!', containing the text 'New exam center, Alexandroupoli, was added.' and an 'OK' button. The 'Add Center' button remains at the bottom right.

3. Add center administrator (choose from the users)

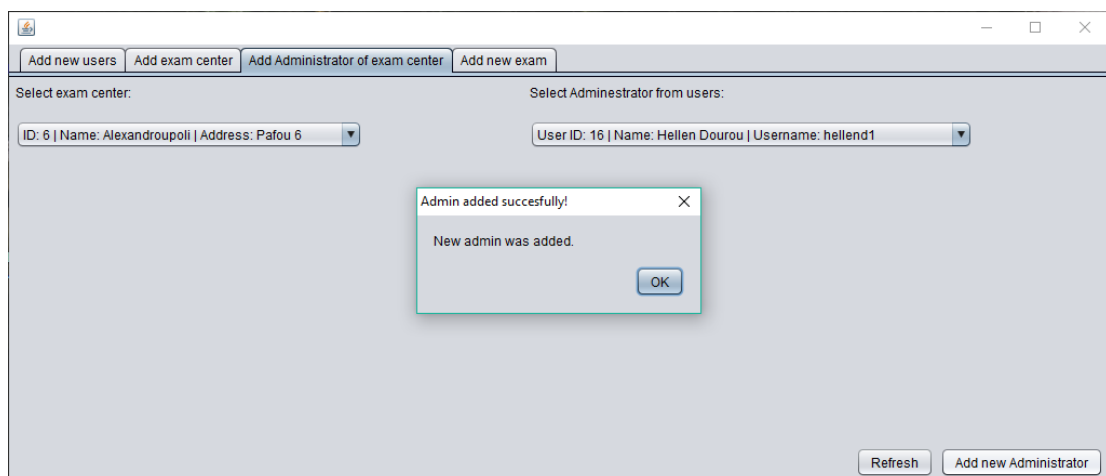
The exam center and the user who will become an administrator are selected. If there are no exam centers or users, the "Add new Administrator" button does not appear and in the place of the corresponding menu lists that are empty a corresponding message is displayed:



The screenshot shows a web application window titled "Add Administrator of exam center". It has four tabs: "Add new users", "Add exam center", "Add Administrator of exam center" (which is active), and "Add new exam". The main content area is divided into two sections. The left section, labeled "Select exam center:", contains a dropdown menu with the selected item "ID: 6 | Name: Alexandroupoli | Address: Pafou 6". The right section, labeled "Select Administrator from users:", contains a dropdown menu with the selected item "User ID: 16 | Name: Hellen Dourou | Username: hellend1". At the bottom right of the window, there are two buttons: "Refresh" and "Add new Administrator".

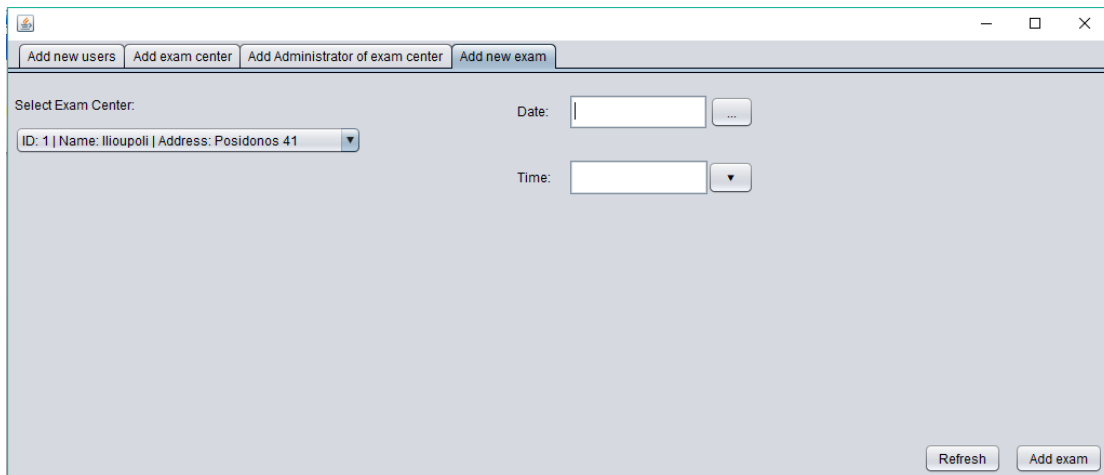
Also, the "Refresh" button can be pressed, in case a change was made (ex. adding an exam center) and does not appear because when the window was loaded the change had not yet taken place.

Result display:



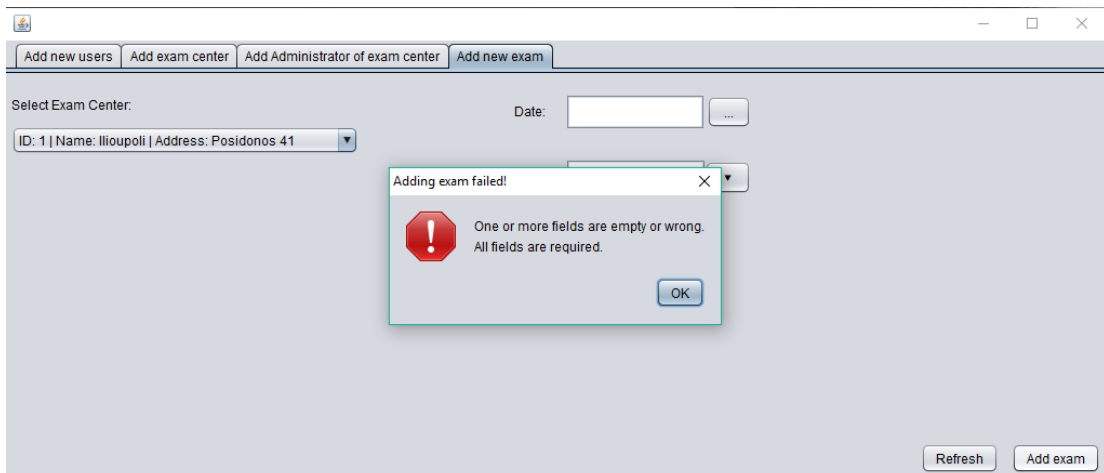
This screenshot shows the same web application window as the previous one, but with a modal dialog box displayed in the center. The dialog box has a title bar that says "Admin added succesfully!" and a close button (X). The main text inside the dialog box says "New admin was added." and there is an "OK" button at the bottom right. The background window is slightly dimmed, showing the same tabs and dropdown menus as before.

4. Add new exam:



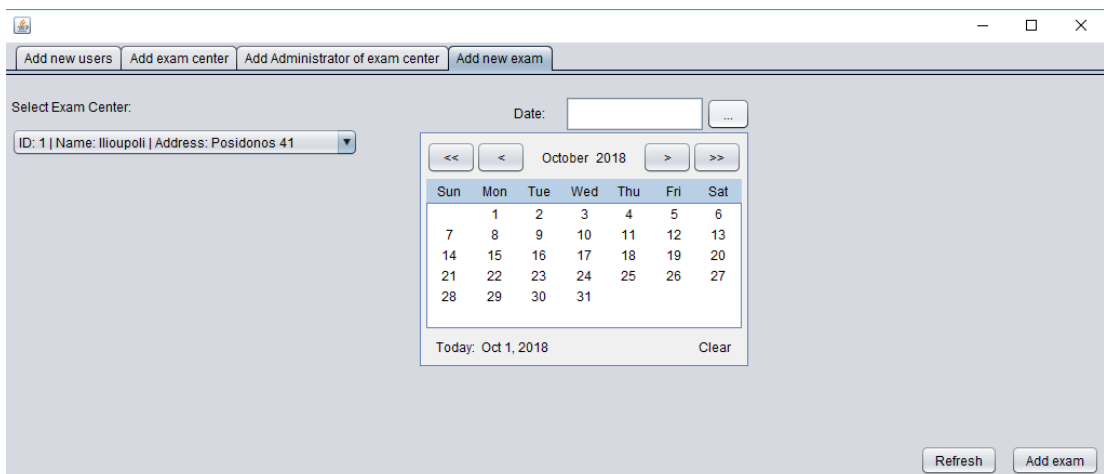
The screenshot shows a web application window titled "Add new exam". The window has a tabbed interface with four tabs: "Add new users", "Add exam center", "Add Administrator of exam center", and "Add new exam". The "Add new exam" tab is active. The form contains a "Select Exam Center:" dropdown menu with the selected value "ID: 1 | Name: Ilioupoli | Address: Posidonos 41". To the right of the dropdown are two input fields: "Date:" and "Time:". The "Date:" field is empty, and the "Time:" field is empty. At the bottom right of the window are two buttons: "Refresh" and "Add exam".

If the user does not enter a date or time or their format is invalid the result is:



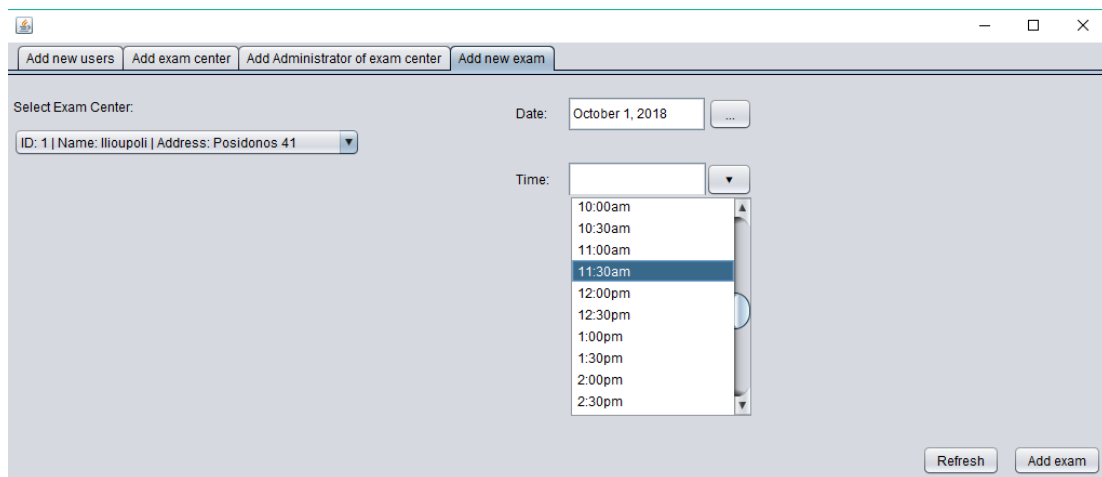
The screenshot shows the same "Add new exam" window as before, but with an error message displayed in the center. The error message is a dialog box titled "Adding exam failed!" with a red exclamation mark icon. The text inside the dialog box reads: "One or more fields are empty or wrong. All fields are required." There is an "OK" button at the bottom right of the dialog box. The "Date:" and "Time:" fields in the background form are still empty.

Enter date:

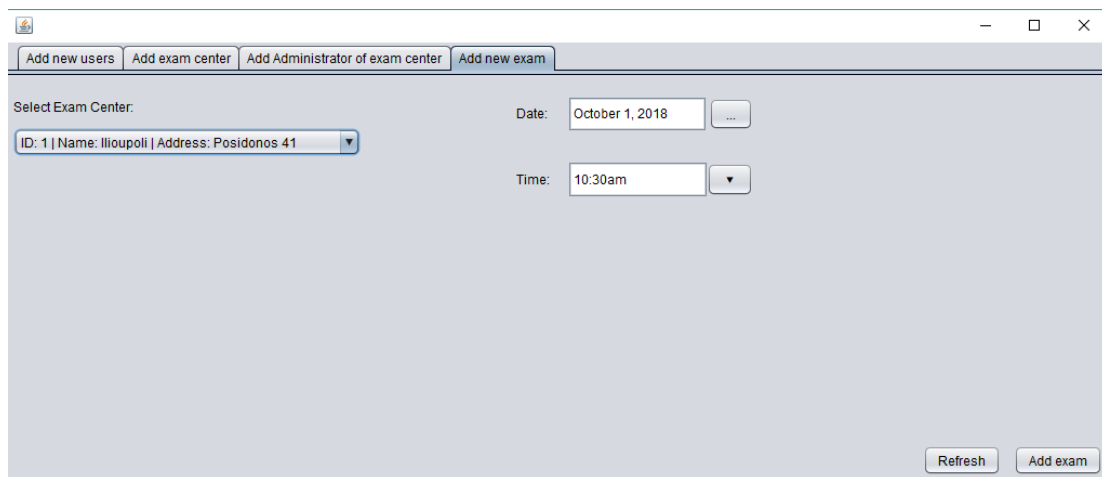


The screenshot shows the "Add new exam" window with a date picker open. The date picker is a calendar for October 2018. The calendar shows the days of the week (Sun, Mon, Tue, Wed, Thu, Fri, Sat) and the dates (1 through 31). The date "Today: Oct 1, 2018" is highlighted. There is a "Clear" button at the bottom right of the date picker. The "Date:" field in the background form is still empty.

Enter time:

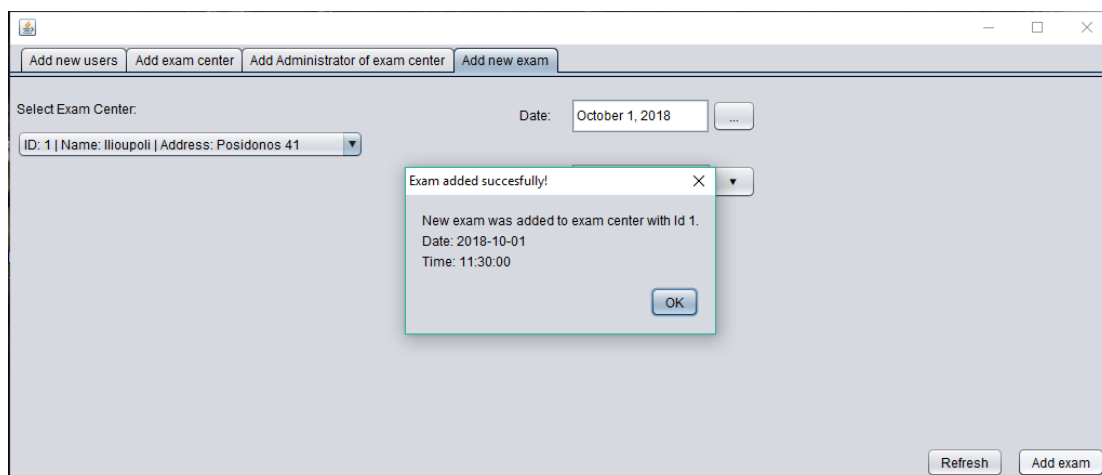


The screenshot shows a web application window titled "Add new exam". The window has a navigation bar with tabs: "Add new users", "Add exam center", "Add Administrator of exam center", and "Add new exam". The main content area has a "Select Exam Center:" section with a dropdown menu showing "ID: 1 | Name: Ilioupoli | Address: Posidonos 41". To the right, there is a "Date:" field with "October 1, 2018" and a calendar icon. Below that is a "Time:" field with a dropdown menu open, showing a list of times from 10:00am to 2:30pm in 30-minute increments. The "11:30am" option is currently selected. At the bottom right, there are "Refresh" and "Add exam" buttons.



This screenshot shows the same "Add new exam" window, but the time dropdown menu is now closed. The "Time:" field now displays "10:30am". The "Date:" field remains "October 1, 2018". The "Refresh" and "Add exam" buttons are still visible at the bottom right.

Result display:

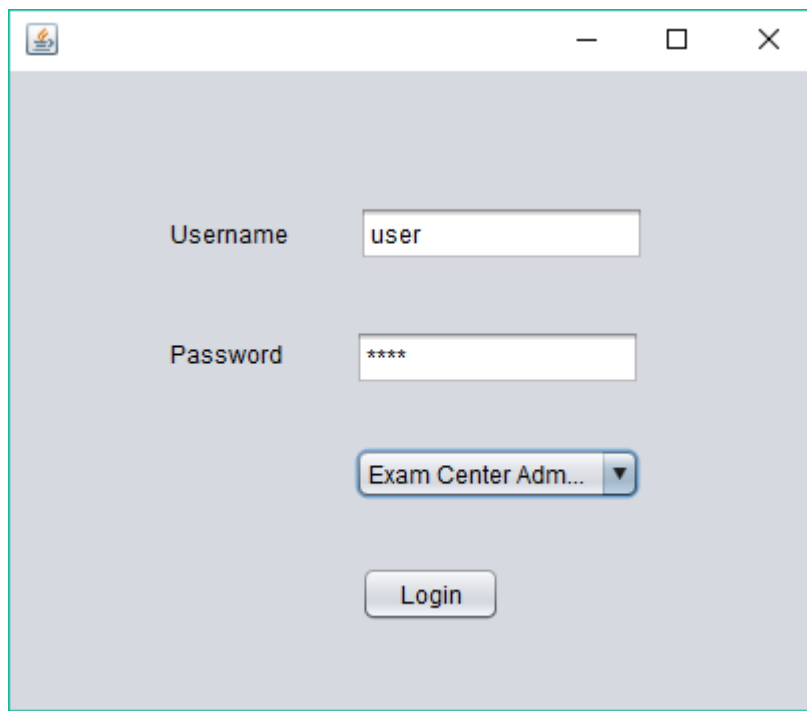


The screenshot shows the "Add new exam" window with a modal dialog box in the center. The dialog box has a title bar that says "Exam added successfully!". The main text inside the dialog box reads: "New exam was added to exam center with Id 1. Date: 2018-10-01 Time: 11:30:00". There is an "OK" button at the bottom right of the dialog box. The background window is slightly dimmed, showing the same "Add new exam" interface as before.

And here the "Refresh" button plays a similar role to before.

These are all functions of the desktop application in the case of the system administrator. Below are the options displayed for the center administrator.

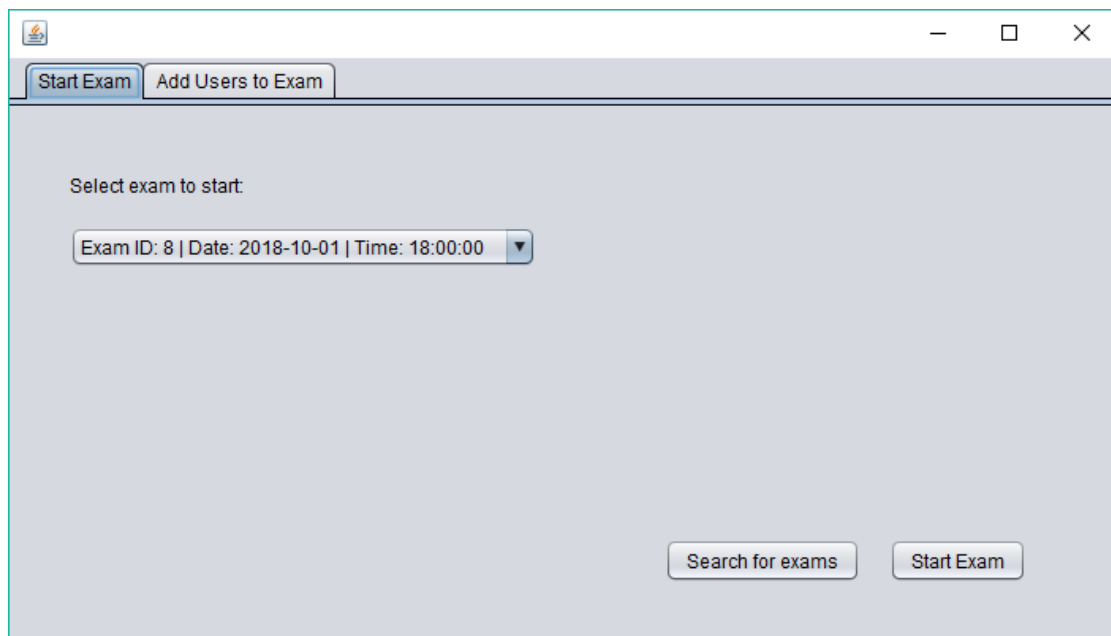
Exam Center Administrator login:



A screenshot of a login window titled "Exam Center Administrator login:". The window has a light gray background and a standard Windows-style title bar with minimize, maximize, and close buttons. The login form contains the following elements:

- A "Username" label followed by a text input field containing the text "user".
- A "Password" label followed by a password input field containing four asterisks "****".
- A dropdown menu below the password field, currently displaying "Exam Center Adm..." with a downward arrow.
- A "Login" button located below the dropdown menu.

Options window:

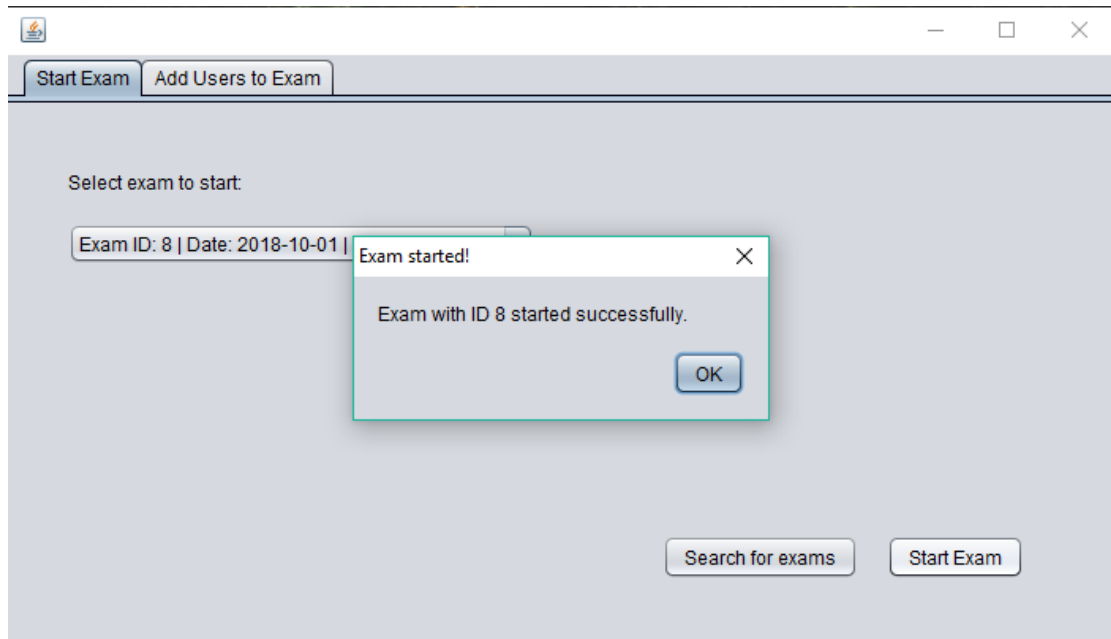


A screenshot of an "Options window" with a light gray background and a standard Windows-style title bar. The window features two tabs at the top: "Start Exam" (which is active) and "Add Users to Exam". The main content area includes:

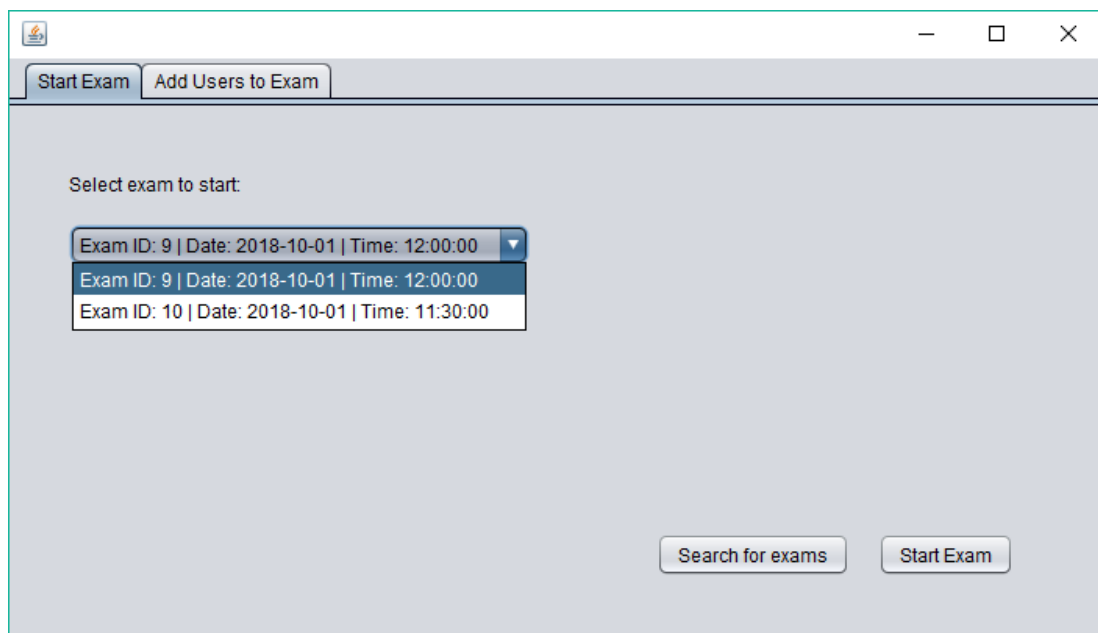
- The text "Select exam to start:" followed by a dropdown menu.
- The dropdown menu displays the text "Exam ID: 8 | Date: 2018-10-01 | Time: 18:00:00" with a downward arrow.
- At the bottom right, there are two buttons: "Search for exams" and "Start Exam".

1. Start Exam

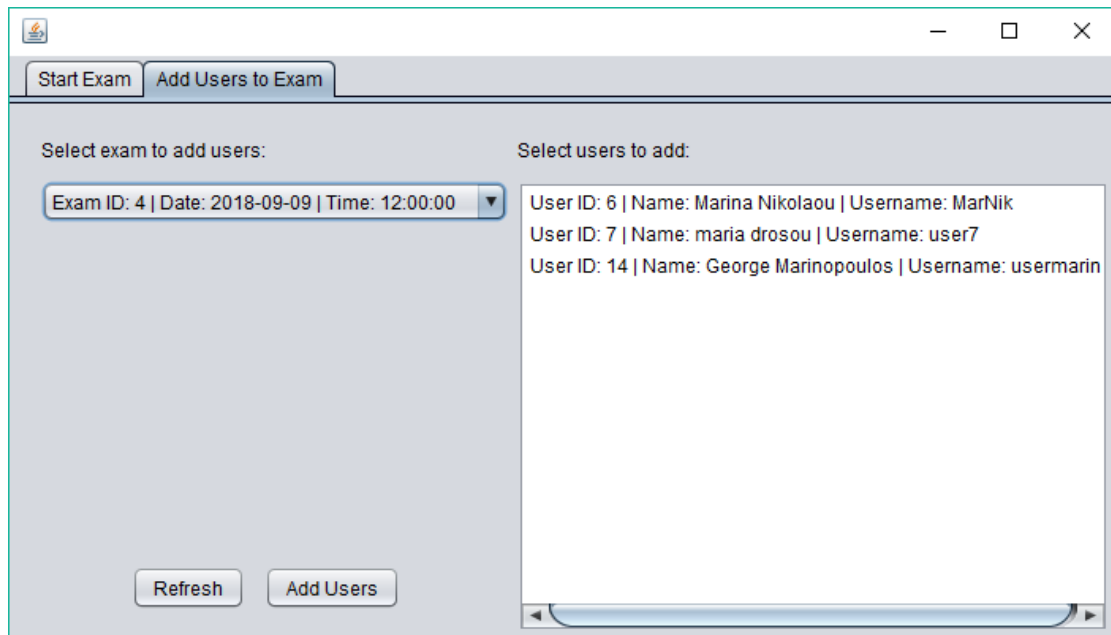
In the first tab option the user is asked to select an exam and start it. The "Search for exams" button serves a similar function to the "Refresh" that existed in the previous ones, ie it renews the list of exams based on the new data that exist in the database.



The list of exams to choose from is automatically updated to include only exams that have not started.

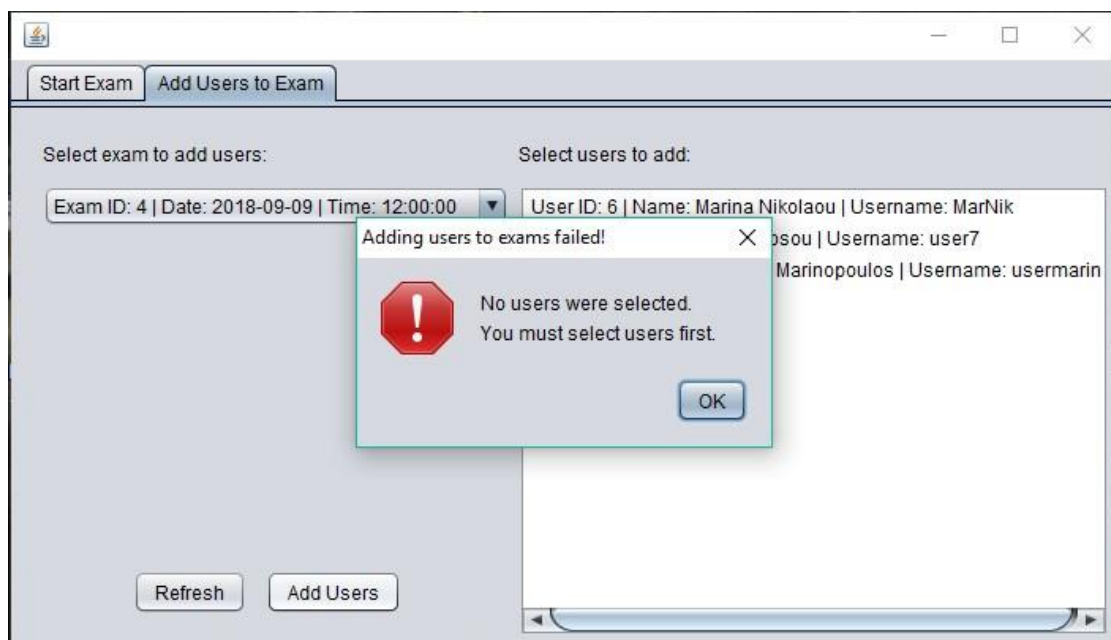


2. Add users to exam:



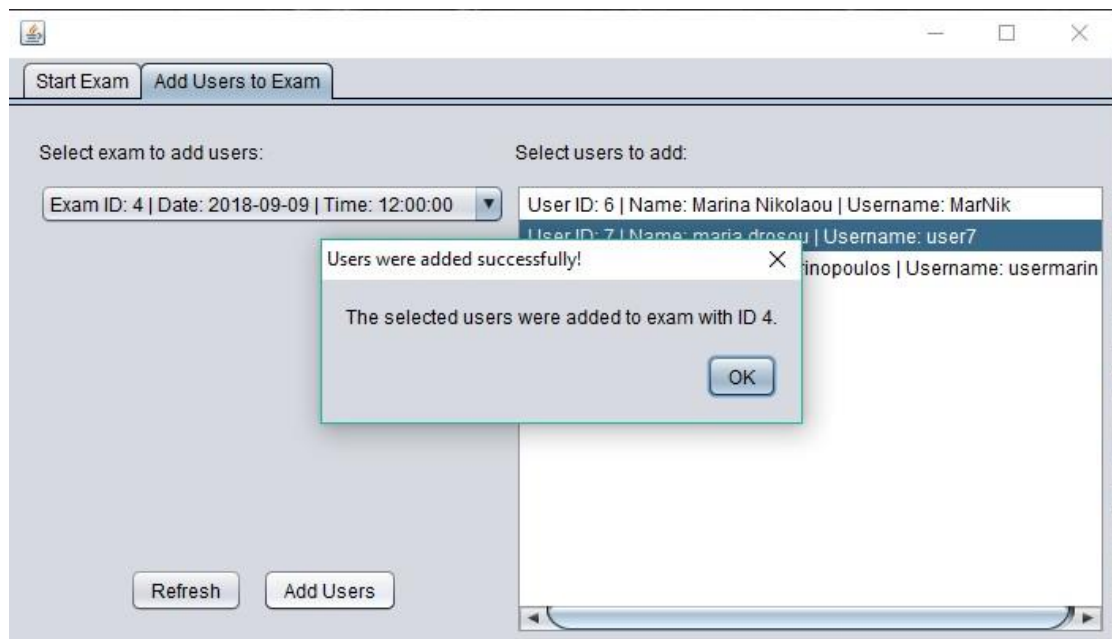
The user selects the ones he wants from the candidates, who have not already taken an exam, and at the same time selects an exam they will take, from those exams that have not already started:

If no user is selected, then the result is:



Also if there are no exams to be entered by users, the "Add Users" button does not appear and a corresponding message appears in the place of the exam list.

Finally, if all goes well, the result is:



These are all functions of the desktop application.