WeSolve

Documentation

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Our Team

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Important comment:

We have updated the website with some new features according to the notes that we got during after the presentation inn class. This mark (***) represent a place where we implemented one of the notes given in class.

Our Idea

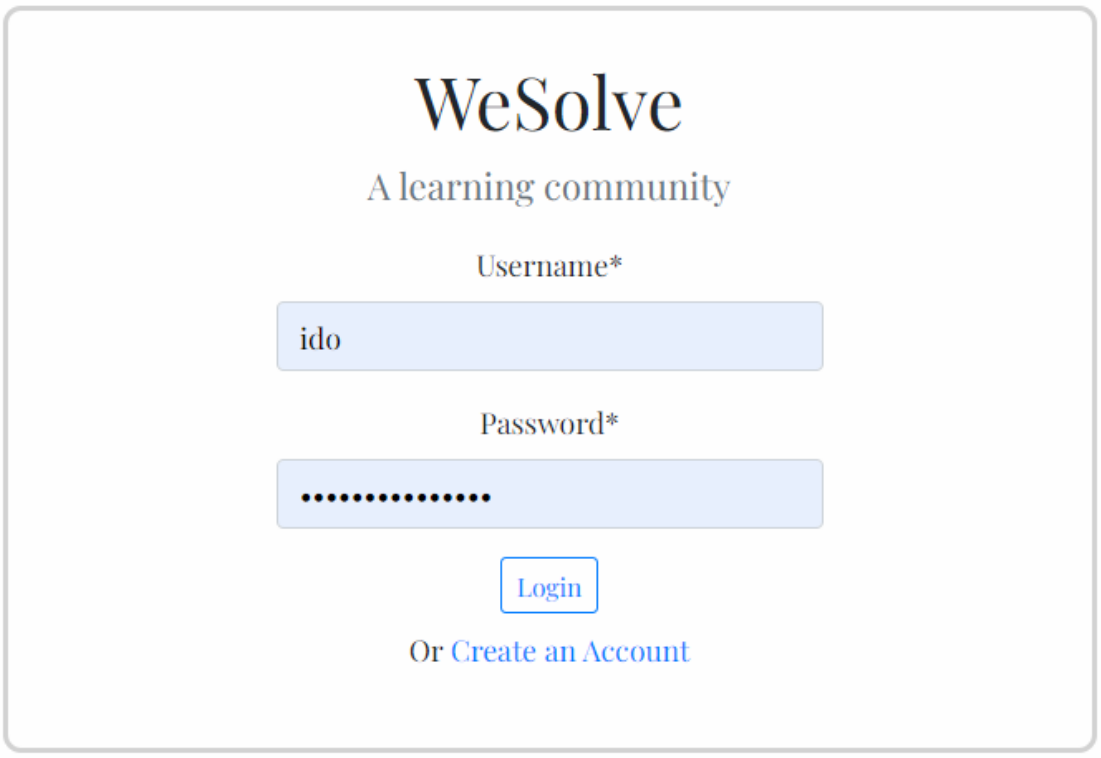
WeSolve is a platform for sharing and ranking solutions for university exams.

Our goal is to create a learning community and help students to study better and pass the exams successfully.

Students can register to WeSolve, upload solutions to questions from past exams, watch other students' solutions, and label/tag/rank solutions.

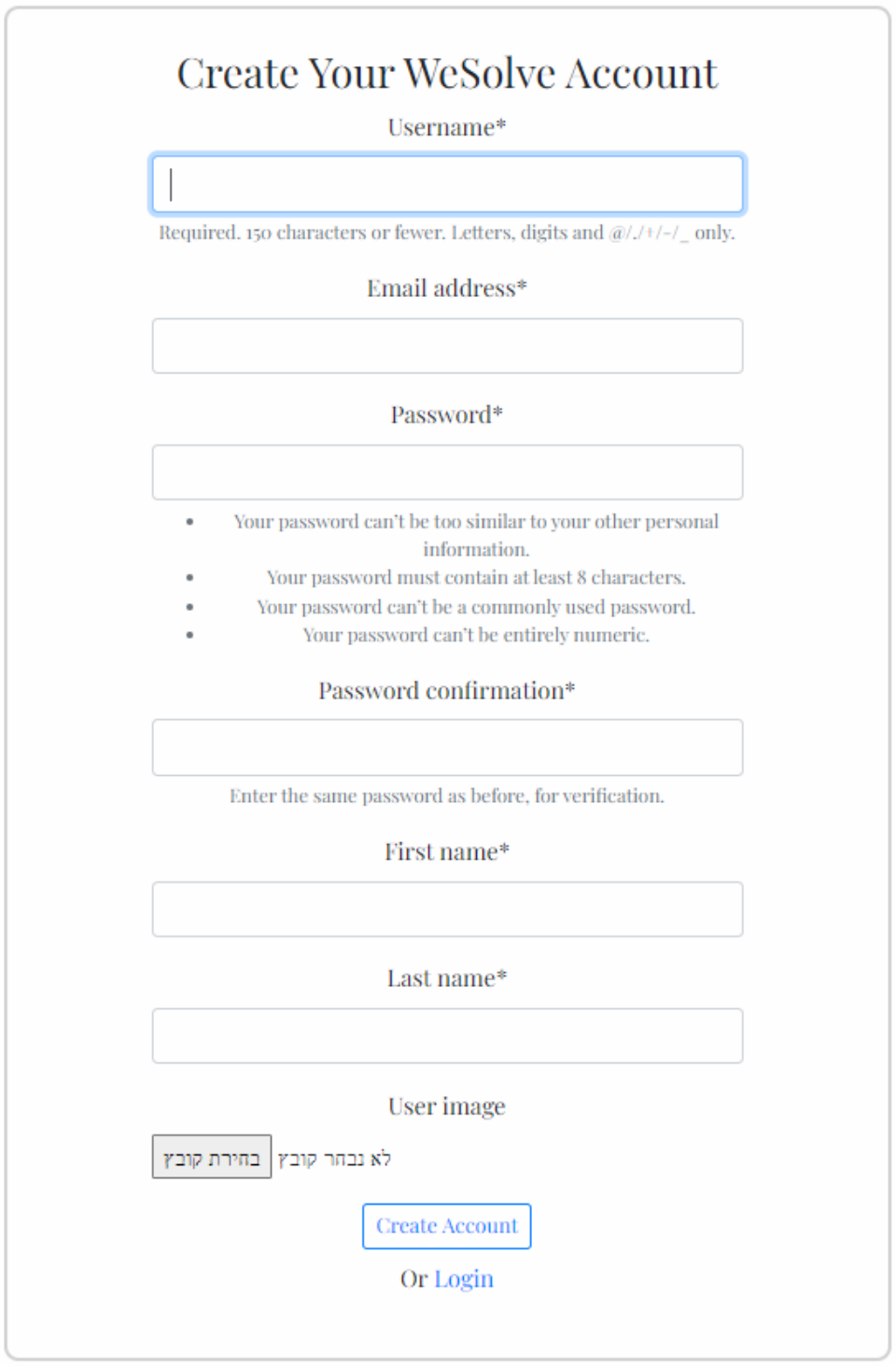
Crowd is what it's all about - We use crowdsourcing to add the credibility dimension to existing exam solution sharing platforms such as Google Drive.

Login Page



In the login page one can use his existing user or “Create an Account”.

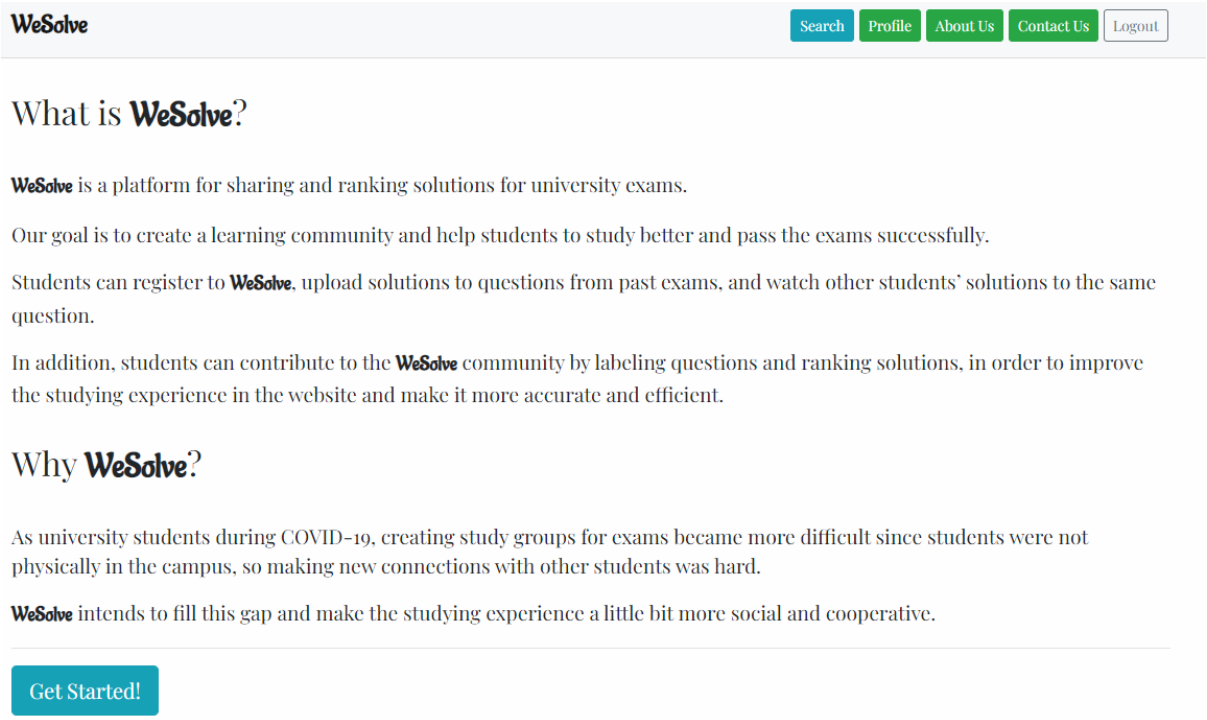
Sign Up Page



All fields are mandatory except user image.

Only users with TAU email account can register to the website. (***)

Main Page - About Us

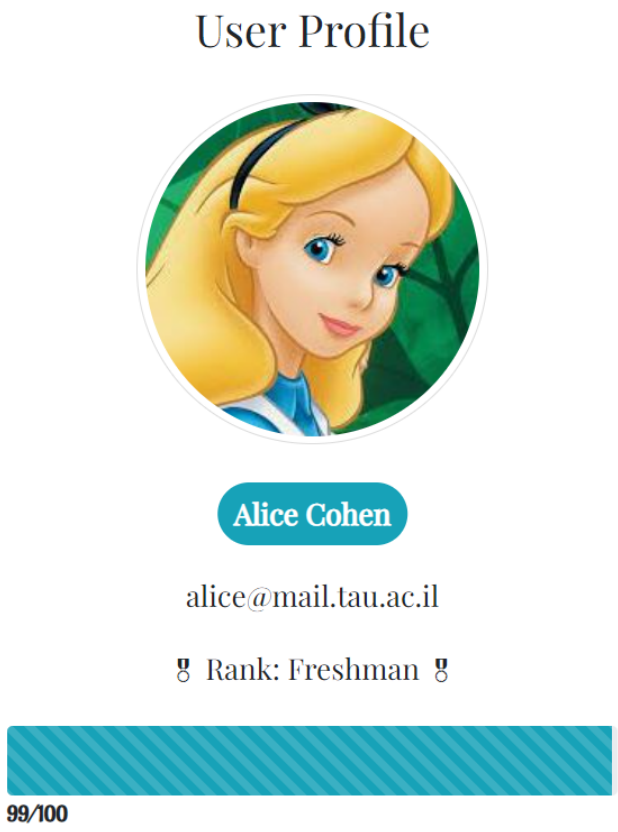


The About Us page explains about the project.

From here you can use both “Search” and “Get Started!” buttons to reach the navigation tool.

Also you can reach your Profile Page, Contact Us page and Logout.

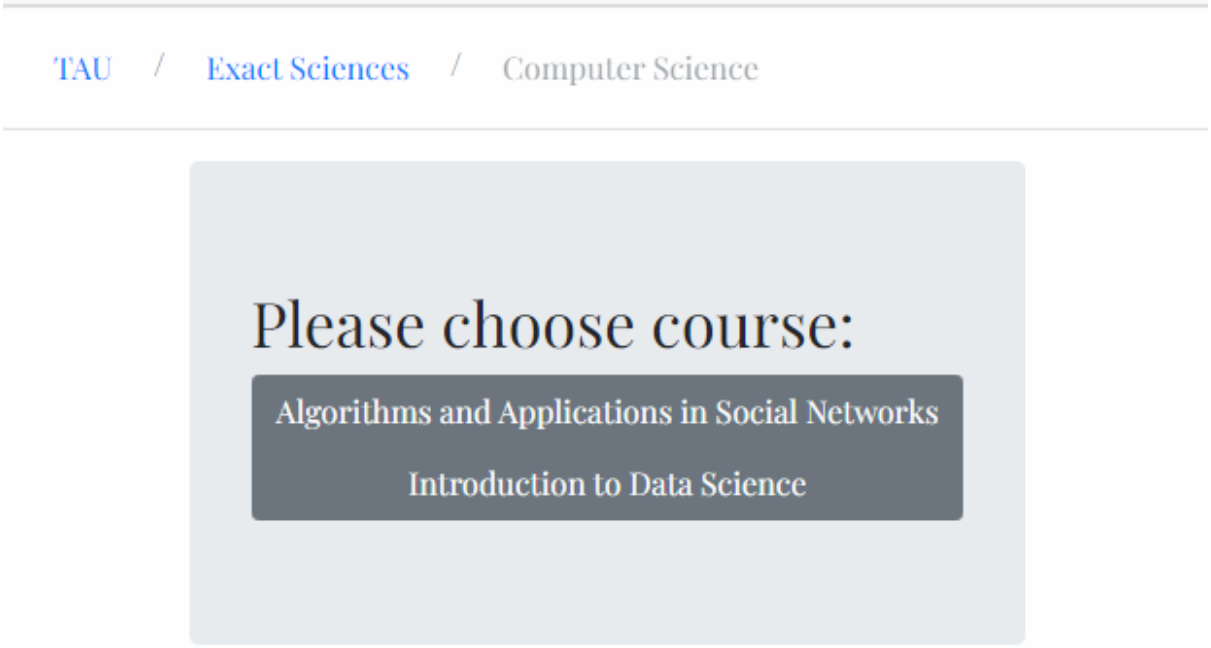
User Profile Page



Here you can check out your personal data and your rank level and score.

In order to block spammers from harming the website, when a user have a score of -100 points, the account is blocked, so the user have only read permissions at the website.

Navigation Tool



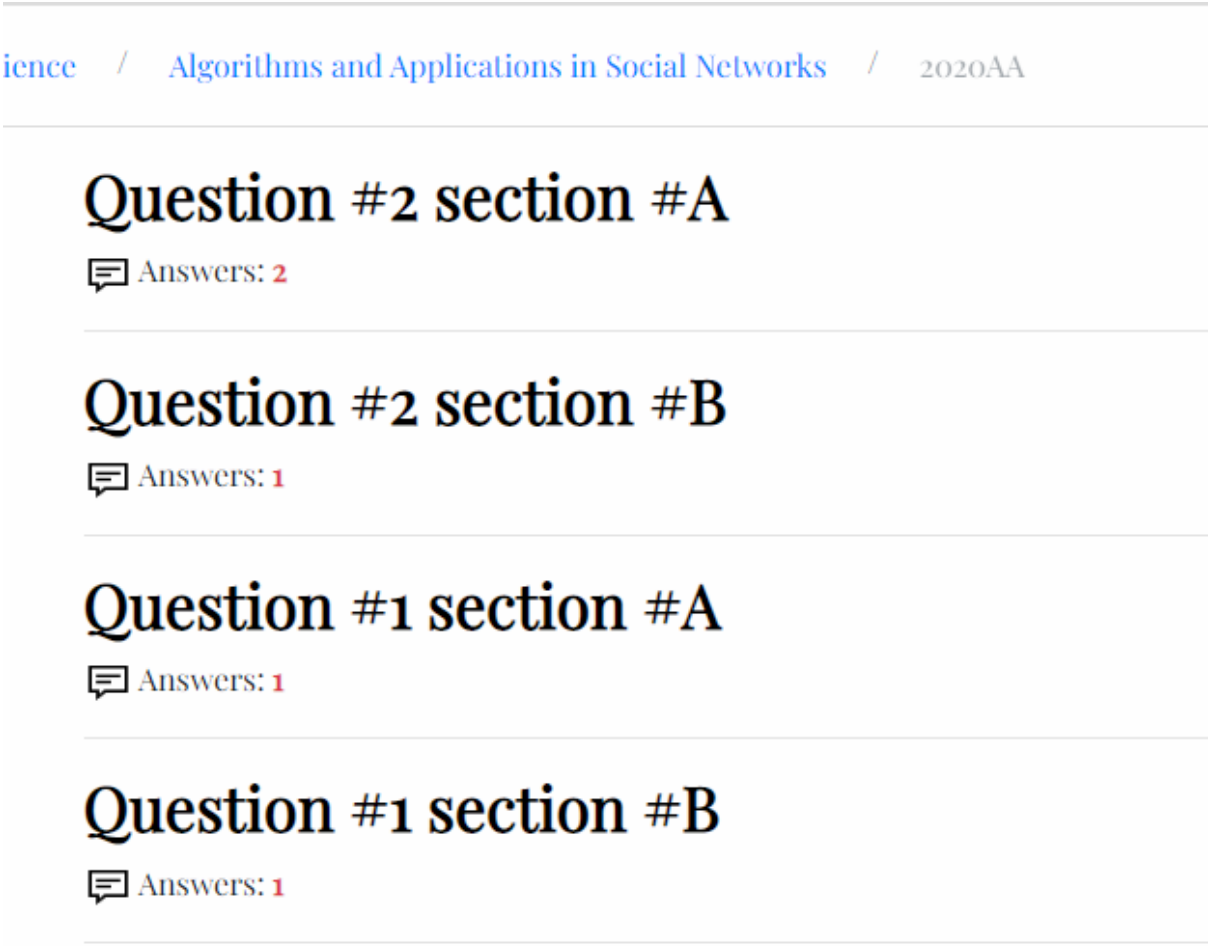
Using the Navigation Tool you can find the desired exams, questions and answers.

You can always click on the previous selected items on your path to go back.

For example, clicking on “TAU” will take you back to choose a faculty of TAU.

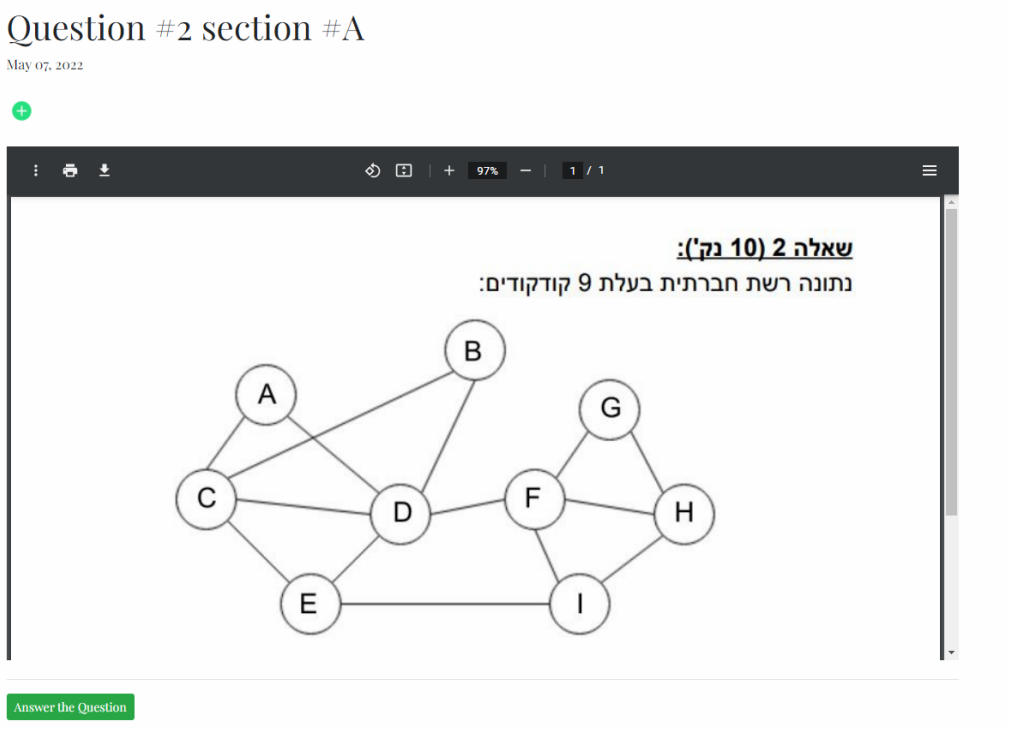
We assumed that all of the data about courses, exams and questions is provided by TAU.

Questions List Page



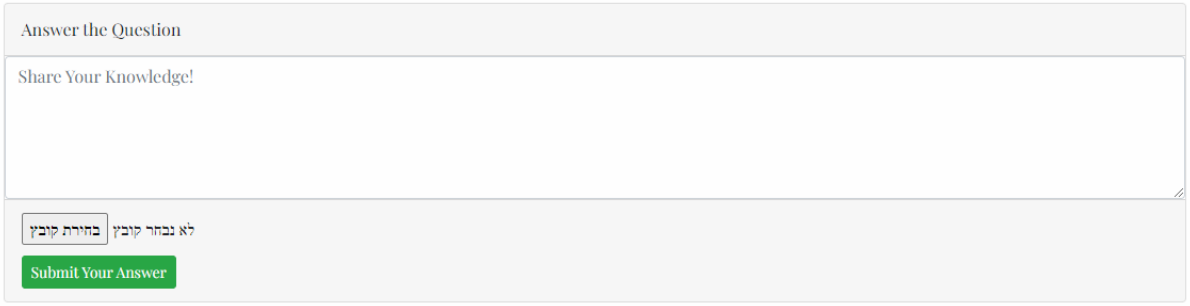
After choosing the desired exam, all of its questions will appear with indications of the amount of answers.

Question Page - Question Part

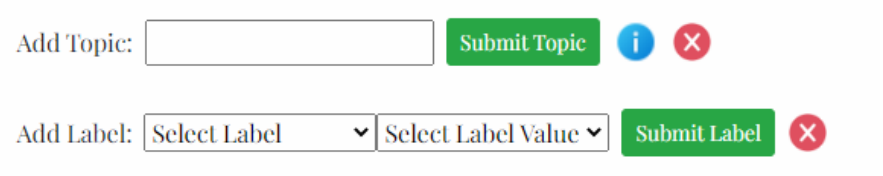


After choosing a question, I can see a pdf of it.

I can click the “Answer the Question” button to add my answer (an answer can be added only once by each user).



I can also click on the green plus icon to add Labels and Topics.



Question Page - Topics and Labels

Each question has Topics and Labels given to it by the users.

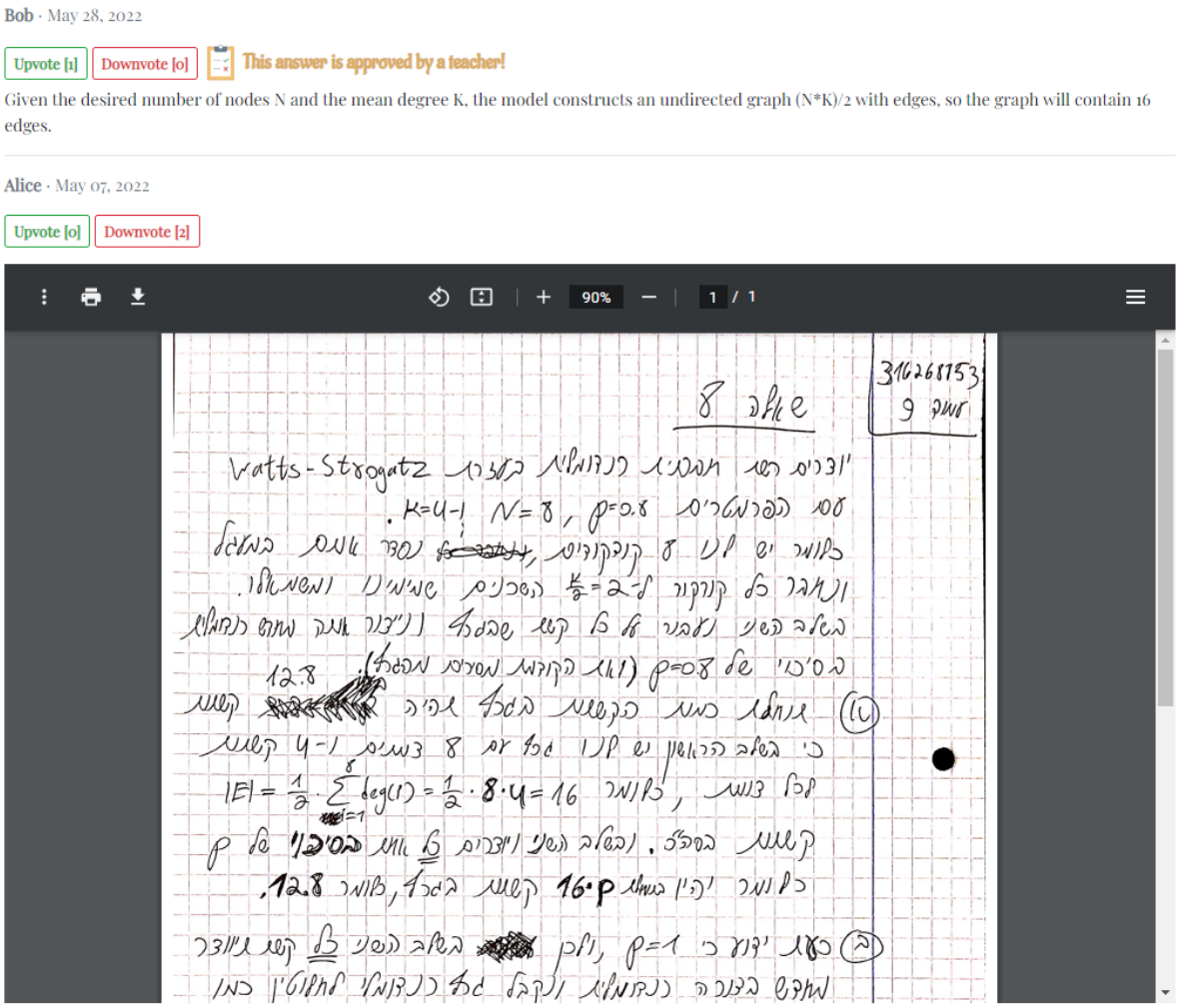
Topics (Red):

- Show top 3 Topics for each question.
- Always in lowercase.
- Each Topic is being presented with its amount of votes.
- Insertion has an auto-complete mechanism to improve UX and avoid duplications.
- Topic must has at least three votes to be presented (we chose this number so we won't need a lot of users for our testing). (***)

Labels (Yellow):

- Selected from a closed set of 4 options: Difficulty, Importance, Points Percentage and Question Type.
- Difficulty and Importance Labels show the average of votes.
- Points Percentage and Question Type Labels show the amount of votes.
- Label must has at least three votes to be presented (we chose this number so we won't need a lot of users for our testing). (***)

Question Page - Answers Part



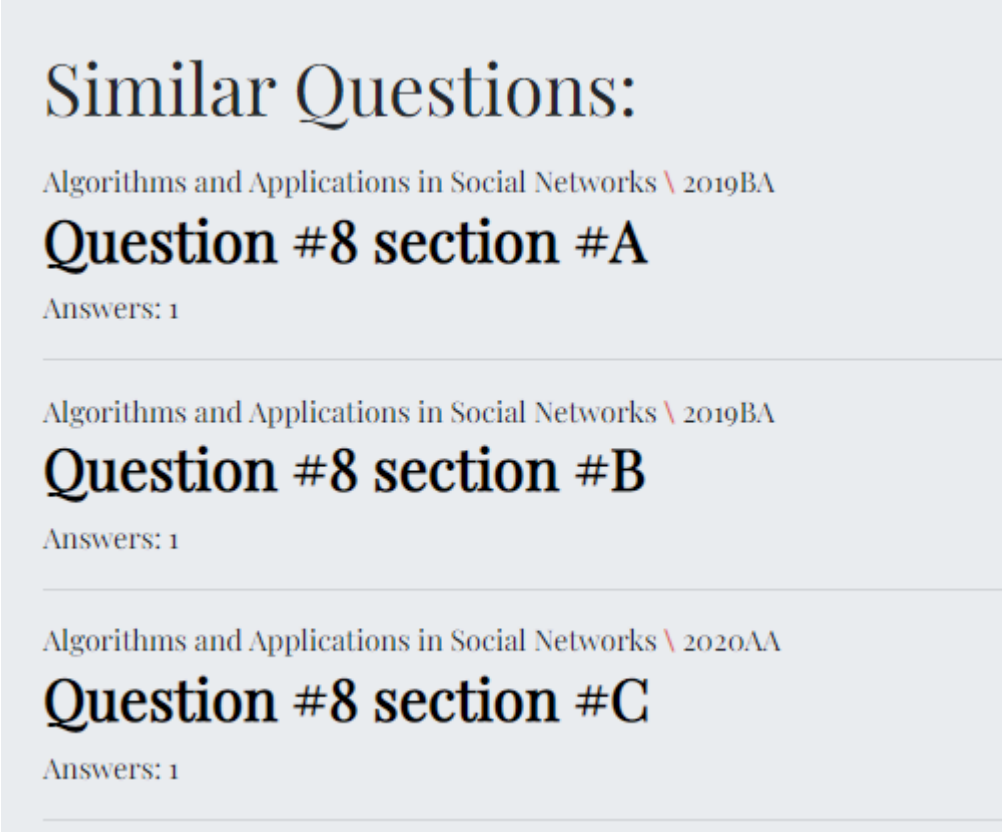
Answers can contain PDF files or be written as simple text, or both.

Answers are sorted by their Upvotes-Downvotes score.

Each user can Upvote or Downvote any answer only once, if it isn't his answer.

Answers with Upvotes by Teacher Users will receive an "This answer is approved by a teacher!" mark as in the picture above. The same goes by default (no upvote required) for answers written by Teacher Users. (***)

Question Page - Similar Questions



On the bottom of each question you can find the 3 most similar questions by labels and topics.

You can navigate to those questions by clicking on them.

Similarity is calculated with these formulas:

$$dist(q_1, q_2) = dist_{topic}(q_1, q_2) + dist_{label}(q_1, q_2)$$

$$dist_{topic}(q_1, q_2) = 10 \cdot \left(1 - \frac{q_1.topics \cap q_2.topics}{q_1.topics \cup q_2.topics}\right)$$

$$dist_{label}(q_1, q_2) = dist_{difficulty}(q_1, q_2) + dist_{importance}(q_1, q_2) + dist_{type}(q_1, q_2) + dist_{points}(q_1, q_2)$$

$$dist_{difficulty}(q_1, q_2) = 2 \cdot |q_1.difficulty - q_2.difficulty|$$

$$dist_{importance}(q_1, q_2) = 2 \cdot |q_1.importance - q_2.importance|$$

$$dist_{type}(q_1, q_2) = \begin{cases} 5 & if\ q_1.type \neq q_2.type \\ 0 & if\ q_1.type = q_2.type \end{cases}$$

$$dist_{points}(q_1, q_2) = \begin{cases} 5 & if\ q_1.points \neq q_2.points \\ 0 & if\ q_1.points = q_2.points \end{cases}$$

The bigger the weight each distance function got, the more effect it has on the distance between each question. We chose these weights according to what we thought was logical, and we tuned it after some experiments we did.

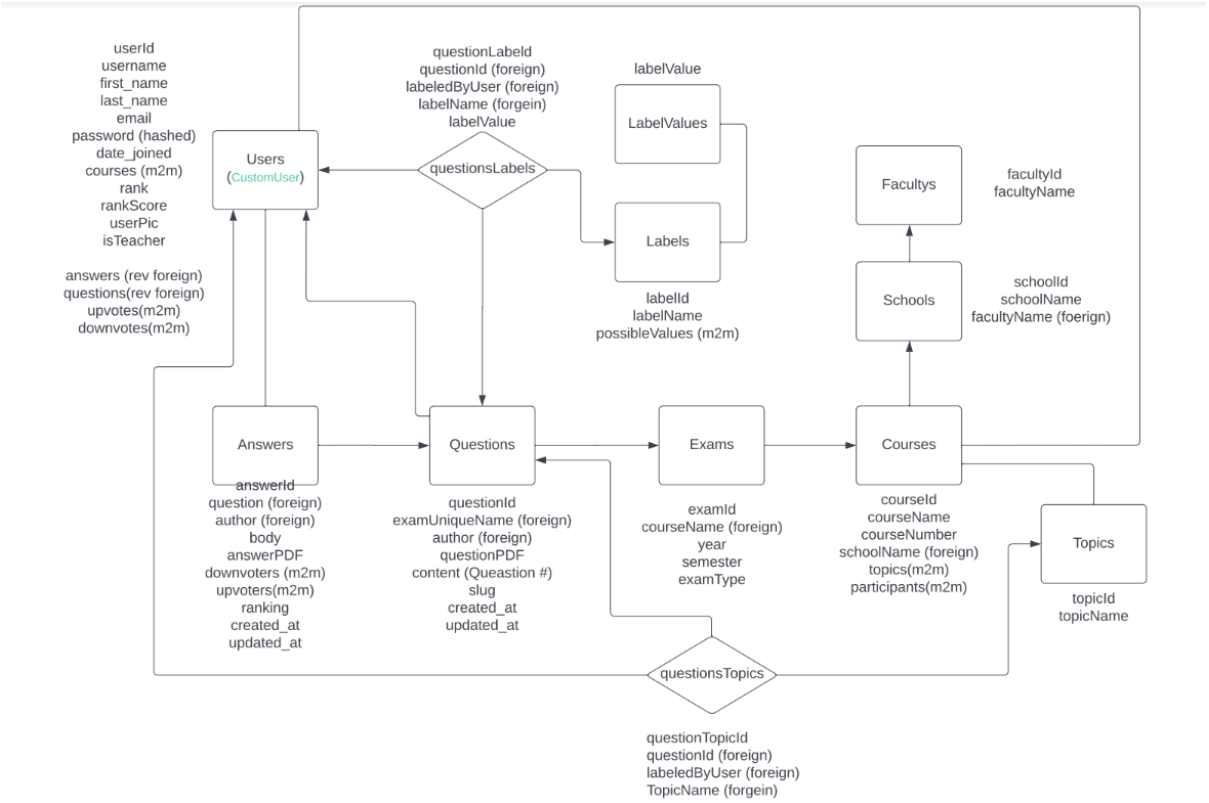
Custom Users Credentials for testing the website

USERNAME	PASSWORD	EMAIL ADDRESS	IS_TEACHER?	STAFF STATUS
Alice	pass2022	rachel@mail.tau.ac.il	No	No
Bob	word2022	bob@mail.tau.ac.il	No	No
Eve	spam123456	xss@mail.tau.ac.il	No	No
admin	admin	nirswartz@mail.tau.ac.il	No	Yes
rector	TAU123456	mark.shtaif@mail.tau.ac.il	Yes	No
slavanov	messi123456	slavanov@mail.tau.ac.il	Yes	No
Guy	ido123456	guys@mail.tau.ac.il	No	No

We recommend to use the following users to explore the different features in the website:

- Regular user:
    - **Alice** for user ranking
    - **Guy** for uploading answers and giving topics and labels to questions.
- Teacher: **slavanov**
- Spammer user: **Eve**

Database Schema



API endpoints documentation

General:		
Name	Method	path
get all users	GET	users/
get current user	GET	users/current/
For the nav bar:		
Name	Method	path
get all faculties	GET	nav/faculties/
get all schools by faculty	GET	nav/<str:faculty>/schools/
get all courses by school	GET	nav/<str:school>/courses/
get all exams by course	GET	nav/<str:course>/exams/
get all questions by exam	GET	nav/<str:exam>/questions/
get all questions by exam (ctumbs)	GET	nav/<str:examId>/crumbs/
question & answers page:		
Name	Method	path
get question by slug	GET	questions/<slug:slug>/
get all answers by slug order by ranking	GET	questions/<slug:slug>/answers/
get answer by answerId	GET	answers/<string:answerId>/
create answer by slug	POST	questions/<slug:slug>/answer/
answers ranking:		
Name	Method	path
remove upvote by answerId	DELETE	answers/<string:answerId>/upvote/
add upvote by answerId	POST	answers/<string:answerId>/upvote/
remove downvote by answerId	DELETE	answers/<string:answerId>/downvote/
add downvote by answerId	POST	answers/<string:answerId>/downvote/
question labeling:		
Name	Method	path
get labels and possible labels	GET	labels/
get all topics	GET	topics/
get top topics by question	GET	questions/<str:questionId>/topics/
get labels by question	GET	questions/<str:questiondId>/labels/
add label to question	POST	questions/<str:questiondId>/labels/
add topic to question	POST	questions/<str:questionId>/topics/
show similar questions:		
Name	Method	path
get similar question by slug	GET	questions/<str:question>/similar/

Thank You!