WeSolve

Documentation

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Our Team

Nir Swartz	316268853	nirswartz@gmail.com
Itai Weiss	204880256	itaiweiss@mail.tau.ac.il
Guy Shnaider	313119679	guyshnaider@mail.tau.ac.il
Ido Gazit	313197980	idogazit@mail.tau.ac.il

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.
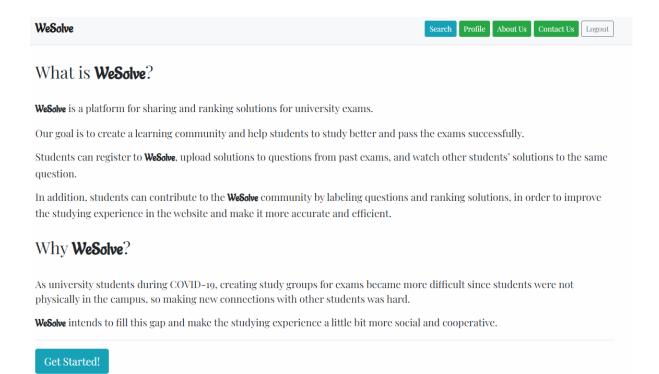
Login Page

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

Sign Up Page

Create Your WeSolve Account

Username*

Required. 150 characters or fewer. Letters, digits and @/./+/-/_ only.

Email address*

Password*

- Your password can't be too similar to your other personal information.
- Your password must contain at least 8 characters.
- Your password can't be a commonly used password.
- Your password can't be entirely numeric.

Password confirmation*

Enter the same password as before, for verification.

First name*

Last name*

User image

לֹא נבחר קובץ | בחירת קובץ

Create Account

Or Login

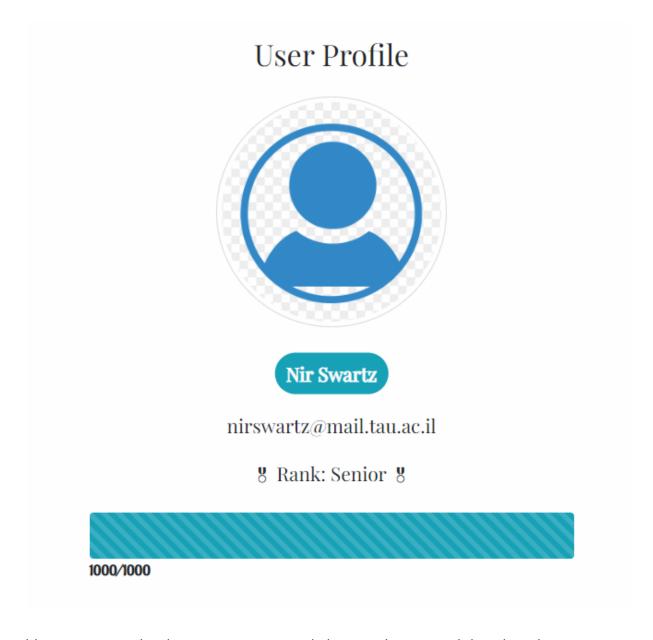All fields are mandatory except user image.

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.

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.

Questions List Page

Question #2 section #A
Answers: 2

Question #2 section #B
Answers: 1
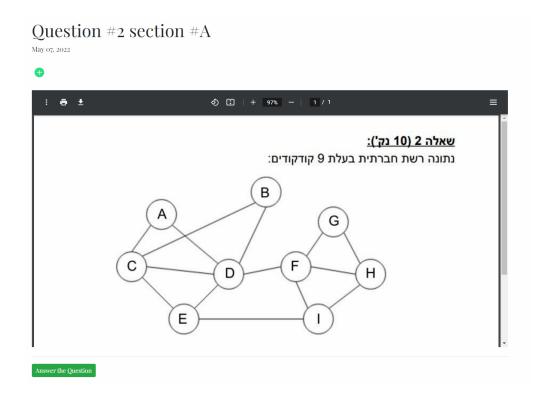
Question #1 section #A
Answers: 1

Question #1 section #B
Answers: 1

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

Question Page - Question Part

Question #2 section #A
May 07, 2022

Answer the Question

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

I can click the "Answer the Question" button to add my answer (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

Question #8 section #A

May 28, 2022

clique [3] **Difficulty: 4.00** ⊕

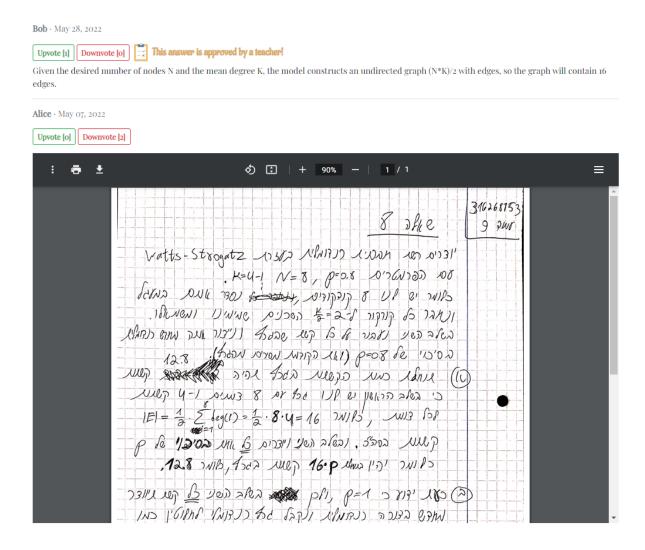Each question has Topics and Labels given to it by the users.

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

Bob · May 28, 2022

Upvote [1]   Downvote [0]   📋 **This answer is approved by a teacher!**

Given the desired number of nodes N and the mean degree K, the model constructs an undirected graph (N*K)/2 with edges, so the graph will contain 16 edges.

Alice · May 07, 2022

Upvote [0]   Downvote [2]

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!". **Same goes for answers written by Teacher Users.**

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:

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

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

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

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

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

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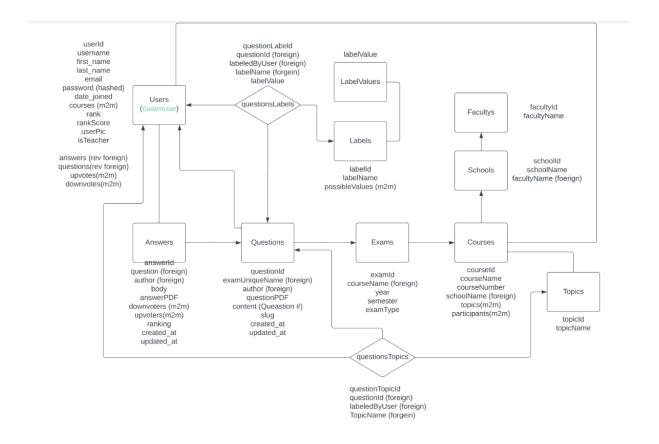
$$dist_{points}(q_1, q_2) = \begin{cases} 5 & if\ q_1.\, points \neq q_2.\, points \\ 0 & if\ q_1.\, points = q_2.\, points \end{cases}$$

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

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!