

Smart Exam



Software for managing exams, tests, surveys and quizzes.

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Smart Exam

- Smart Exam is a Software platform computer based assessment system (*CBA - Computer Based Assessment*) to simplify the evaluation process for schools, universities, recruiting firms as well as private and public organizations, allowing professors, teachers and examiners to create, distribute and manage exams, tests, surveys and quizzes.
- Once installed on a server and connected to your computer network, Smart Exam can be used as a normal Internet Website via a common Web browser (e.g.: *Mozilla Firefox* or *Internet Explorer*).
- Compared to traditional *Pen-and-Paper Testing (PPT)*, SmartEXam simplifies the process of evaluation reducing costs and improving quality and reliability of the exams.

Smart Exam Project

- Smart Exam project was started In Adama Science and Technology as a bsc final year graduation project.
- Is currently in a good progress!

Exam

- *A set of questions, problems, or the like, used as a means of evaluating the knowledge, abilities, skills, or performance of an individual or a group.*
- Examinations constitute a fundamental aspect of the teaching and learning process, both in traditional courses as well as e-learning environments, as they provide the necessary information to adapt and improve the activities of teachers and students.
- The frequent use of the evaluation systems can favor the development and the strengthening of the meta-cognitive abilities in the students, but may also behave excessive efforts and costs.

Pen-and-Paper Testing (PPT)

- The traditional examinations with pen and paper (PPT) involve a long trial that must be repeated for every test and it is particularly liable to human errors:
 - preparation;
 - printing on paper;
 - distribution;
 - execution;
 - submission;
 - evaluation;
 - delivery of results;
 - filing.

Electronic Exam

- The **electronic exam** is a test conducted using a *personal computer* (PC) or an equivalent electronic device, in which the responses are electronically recorded and assessed.
- Electronic exams are also known as:
 - *Computer Based Assessment (CBA)*;
 - *Computer Based Testing (CBT)*;
 - *e-exam*;
- Electronic exams were initially developed more than 24 years ago for professional certifications in the IT industry, and progressively evolved to satisfy the most complex evaluation needs.
- Currently more than 1.5 billion e-exams are performed every year all over the world.

CBA vs PPT (1)

- Several comparative studies between traditional *Pen and Paper Testing (PPT)* and *electronic exams (CBA)*, confirmed by exhaustive literature review, found the following:
 - test results are independent of delivery mode;
 - CBA systems are largely preferred by examinees;
 - the level of computer skills does not significantly influence the result of the tests;
 - the use of CBA systems can positively influence the entire learning process.

CBA vs PPT (2)

- CBA systems can support the entire cycle of the evaluation process: preparation, distribution, execution, submission, evaluation, delivery of results, and filing.
- Among the main advantages of SmartExam over traditional Pen-and-Paper Testing (PPT) there are:
 - increased delivery, administration and grading efficiency;
 - reduced costs for many elements of the testing life cycle;
 - improved test security due to electronic transmission and encryption;
 - consistency and reliability;
 - faster and more controlled test revision process with shorter response time;
 - faster decision-making as the result of immediate grading and reporting;
 - unbiased test administration and grading;
 - fewer response entry and recognition errors;
 - fewer comprehension errors caused by the testing process;
 - improved translation and localization with universal availability of content;
 - new advanced and flexible item types;
 - increased examinee acceptance and satisfaction;
 - evolutionary step toward future testing methodologies..

Key Features

- Flexibility and Configurability
- Platform Independent
- Web-based Architecture
- Translated to local languages[Amharic and Afan Oromo]
- Accessibility and Usability
- Results and Statistics
- Data Import and Export
- Paper Testing with Optical Mark Recognition
- Multimedia Content
- Unique Tests
- Security

Flexibility and Configurability

- The *SmartExam software* has been engineered to offer a high grade of adaptability to a variety of utilization scenarios.
- Numerous configuration parameters allow modeling SmartExam to fit your needs.
- The system can be expanded to include new functionalities.



KEY FEATURES



Web-based Architecture

- SmartExam is Web-based and developed with LAMP (*Linux, Apache, MySQL, PHP*) technology, but can also be installed on different Operating Systems and Web Server.
- User-friendly interface allows you to install and use SmartExam by simply connecting one cable to the switch of your computer network. All the computers on the network will be able to use SmartExam independently from the client's operating system, with no need to install any additional software or plug-in.
- SmartExam is used as a normal Internet Web-site through a common Web browser (i.e.: *Mozilla Firefox, Google Chrome* or *Internet Explorer*).

Internationalization (I18N)

- SmartExam is language-independent through the adoption of the UTF-8, Unicode and TMX (*Translation Memory eXchange*) standards.
- It is possible to instantly switch to a different language by using the special selector set at the bottom of the pages.

EN AM AO



Accessibility and Usability

- It is essential that CBA tools be accessible in order to provide equal access and equal opportunity to people with disabilities.
- SmartExam Web interfaces conforms to the **XHTML 1.0 Strict** standard, the guidelines on **Accessibility** (W3C-WAI-WCAG 1.0) and **Usability** (*qualitative measure of the interaction between the user and the software application*).



Results and Statistics

- SmartExam outputs a variety of result pages, enabling various selection filters and providing numerous statistical indexes.
- Results and statistics can be exported into various formats for filing or reworking. Electronic filing offers evident advantages, among which a sensible saving of paper and space.
- Examinees can be immediately informed of their results at the end of the test.
- The results can automatically be sent via email to each examinee.



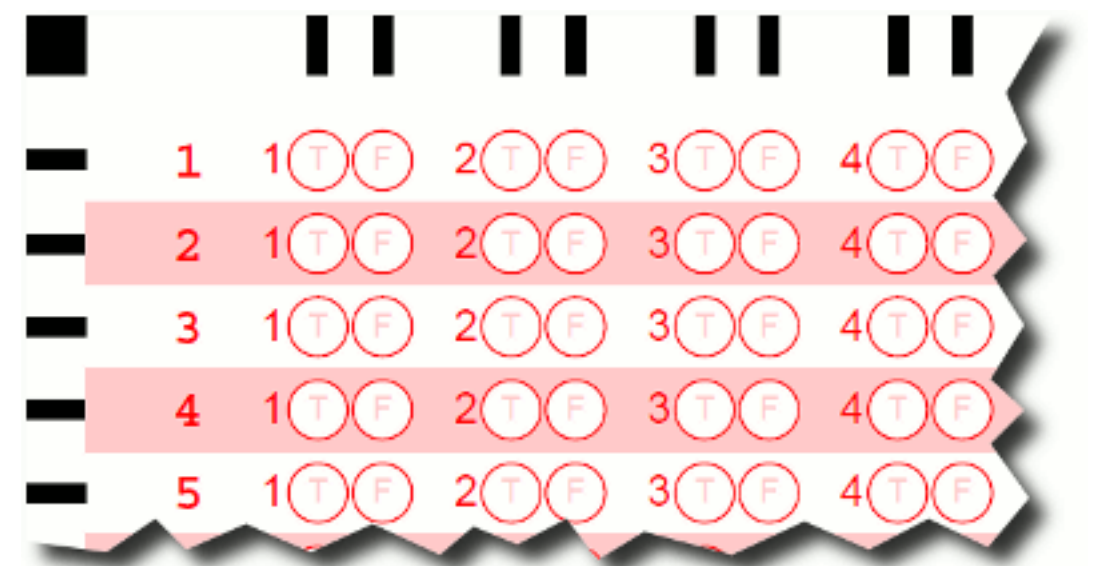
Data Import and Export

- SmartExam uses standard (Open Standard) protocols for data filing and interchange: **TSV** (*Tab Separated Values*), **XML** (*eXtensible Mark-up Language*) and **PDF** (*Portable Document Format*).
- The structure of the database is completely documented to be easily extended or used by external applications.
- It is possible to add custom filters to import data from other systems.
- SmartExam supports different remote authentication and single-sign-on protocols: **LDAP** (*Lightweight Directory Access Protocol*), **RADIUS** (*Remote Authentication Dial In User Service*), **CAS** (*Central Authentication Service*), **Shibboleth** **SSL** and **HTTP Basic**.



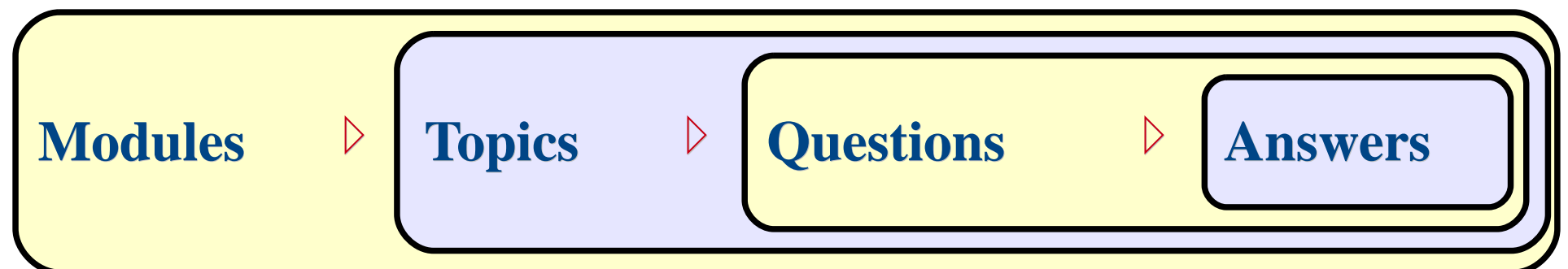
Paper Testing with Optical Mark Recognition

- SmartExam can generate printable PDF documents for pen-and-paper testing.
- The OMR answer sheets can be scanned and uploaded to SmartExam for automatic test importing, scoring and reporting.



Unique Tests

- In SmartExam, questions are grouped into modules and topics. SmartExam can store an unlimited number of modules. Each module can contain an unlimited number of topics. Each topic can contain an unlimited number of questions and each question can have an unlimited number of alternative answers.
- SmartExam can generate unique tests for each user by randomly selecting and ordering questions and alternative answers.
- This feature drastically reduces or eliminates the chances of cheating on the test.

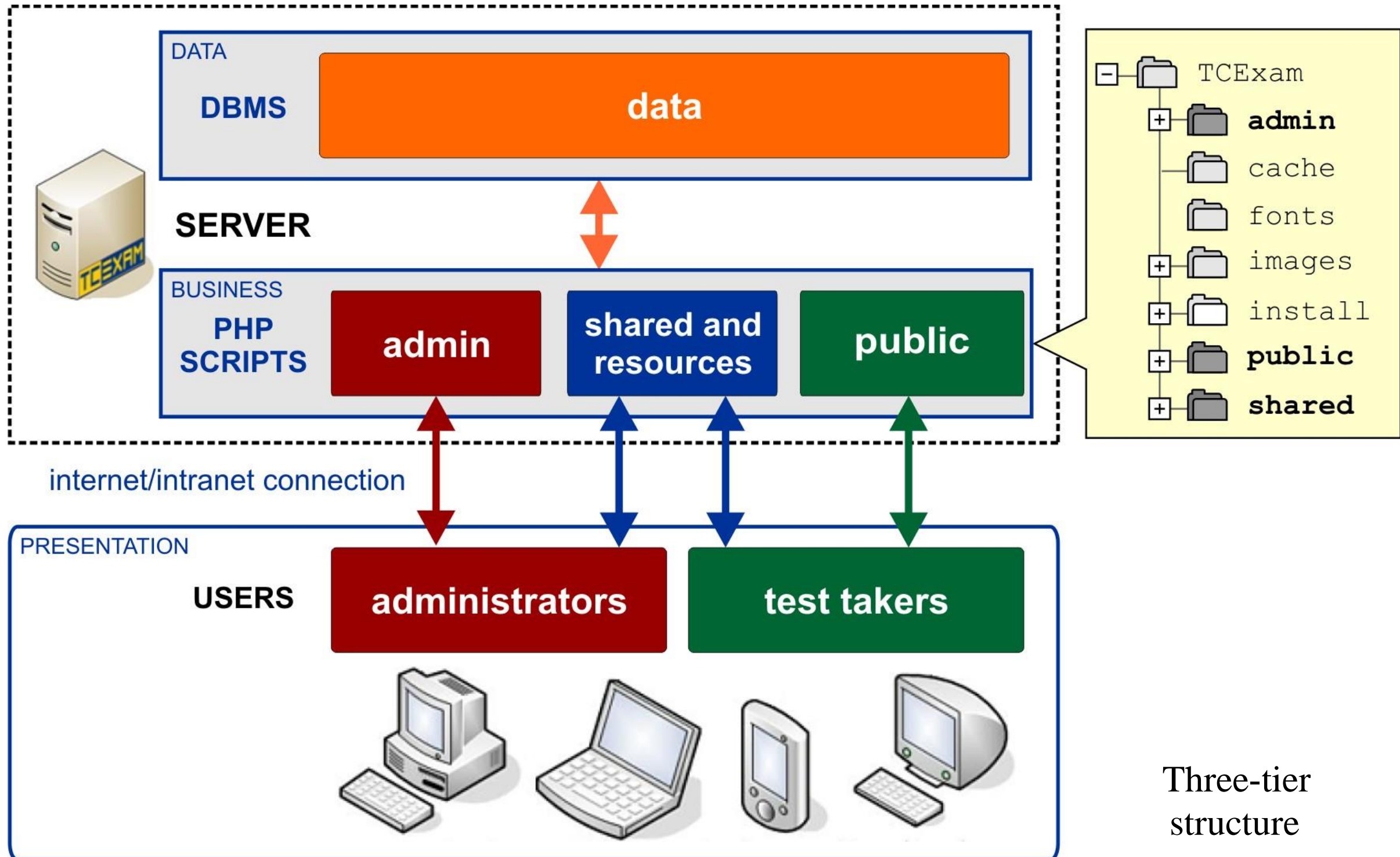


Security

- SmartExam can use **SSL** (*Secure Socket Layer*) encryption to guarantee a secure communication through non secure channels (as Internet).
- The Public area and the Administration area of SmartExam are physically separated in the filesystem.
- SmartExam includes various authentication systems to discriminate the access to the various sections (user / password, access level, user group, IP address).
- The test time is kept by the server. At the end of the allowed time the test is automatically closed.
- The examinees' activity is recorded by the server, including the statistic (i.e. the time of reaction) and security (i.e. the IP address) information.

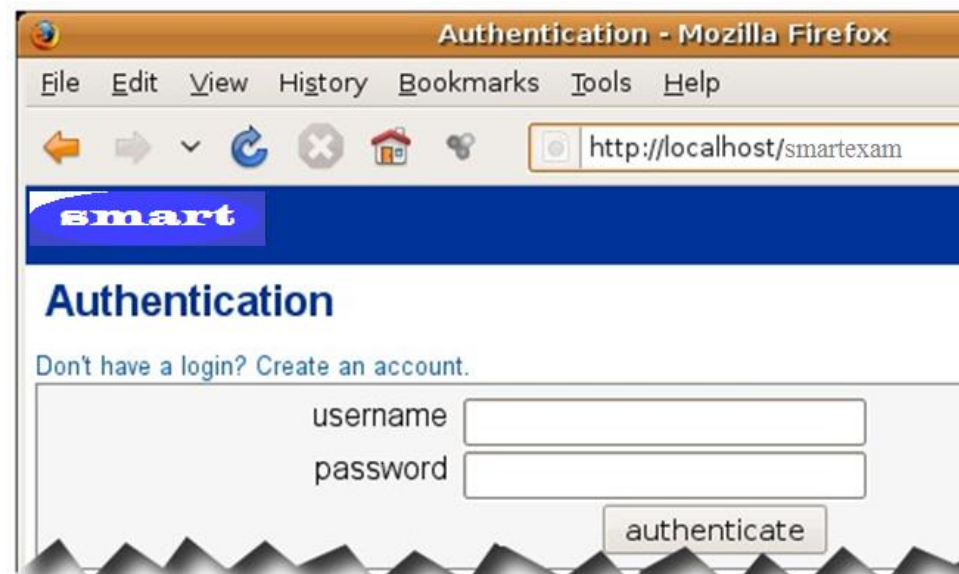


Structure



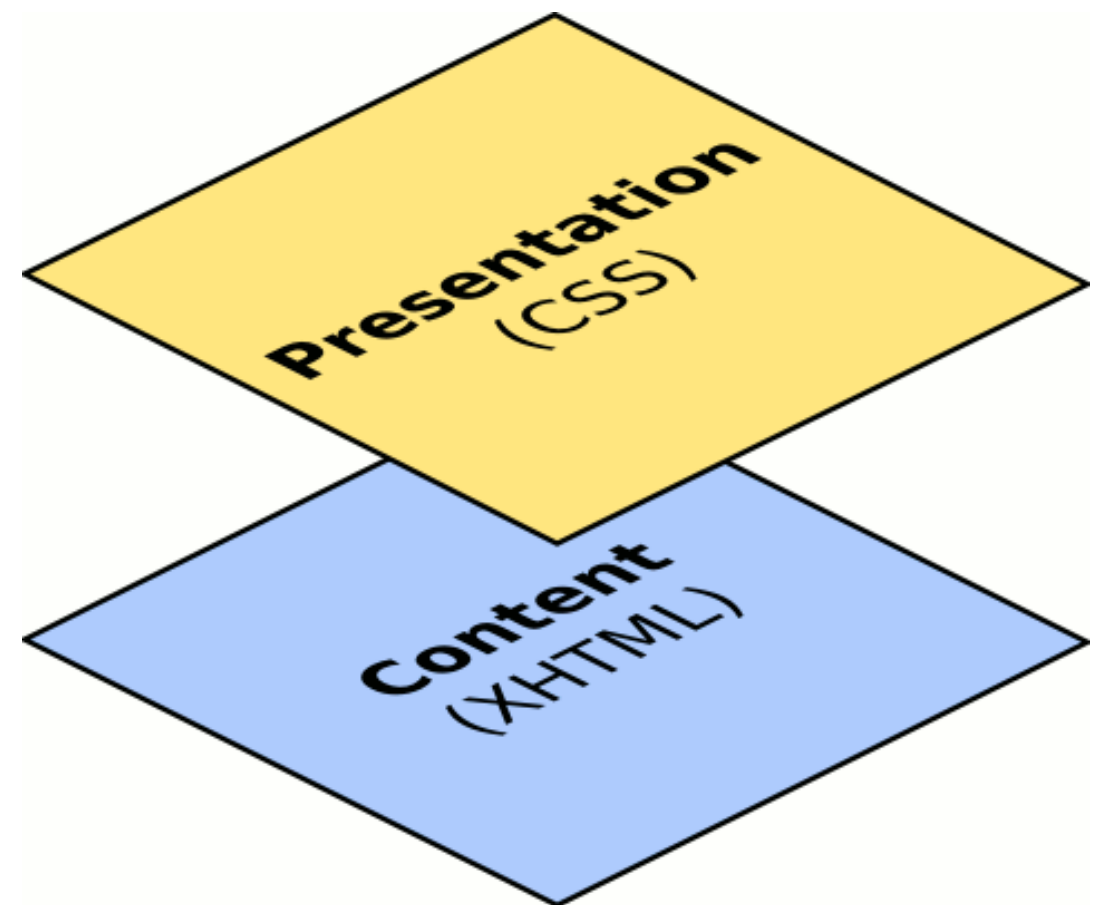
User Interface

- The SmartExam user interface consists in Web pages accessible via a common Web-browser as *Mozilla Firefox*, *Google Chrome* or *Internet Explorer*.
- The users can apply their preferences to the Web browser to adapt the SmartExam user interface to their needs (for instance modifying the dimension of the window or the text size).




Interface with CSS

- The graphic aspect of the user interface is managed through **CSS** (*Cascading Style Sheets*) that allows to independently manage content and graphic look of the pages.
- The user interface works independently from the graphics of the page and can be read by the screen readers used by blind users.



Public Interface

2022-04-27 07:29:20

index results user admin logout

Test List

test	from	to	status	action
mid	2022-04-27 01:01:53	2022-04-27 01:05:00		

This is the main page of SmartExam. From this page you can start or continue your tests

[jump to clock/timer](#) | [jump to navigation menu](#)

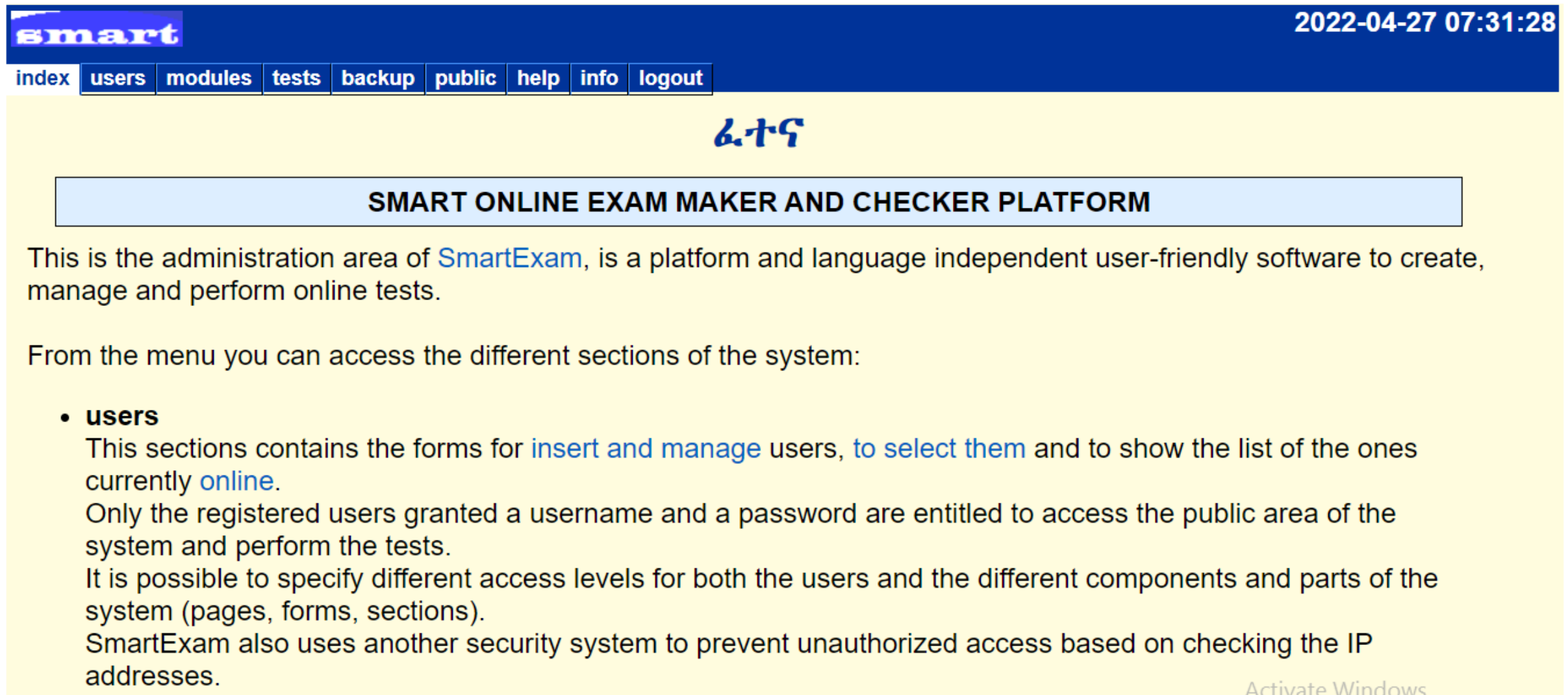
user: admin [logout](#)

EN | ES | FA

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[W3C XHTML 1.0](#) | [W3C CSS 2.0](#) | [W3C WAI-AAA](#)

Administration Interface



The screenshot shows the administration interface of SmartExam. At the top, there is a blue header bar with the 'smart' logo on the left and the date and time '2022-04-27 07:31:28' on the right. Below the header is a navigation menu with links: index, users, modules, tests, backup, public, help, info, and logout. The main content area has a yellow background. In the center, there is a blue box with the text 'SMART ONLINE EXAM MAKER AND CHECKER PLATFORM'. Below this box, there is a paragraph of text: 'This is the administration area of SmartExam, is a platform and language independent user-friendly software to create, manage and perform online tests.' followed by another paragraph: 'From the menu you can access the different sections of the system:'. Below this, there is a bulleted list with one item: '• users'. The text for the 'users' item describes the functionality of the users section, including creating and managing users, selecting them, and showing a list of online users. It also mentions that only registered users with a username and password can access the public area, and that access levels can be specified for different components and parts of the system. Finally, it states that SmartExam uses a security system to prevent unauthorized access based on checking the IP addresses. In the bottom right corner of the screenshot, there is a watermark that says 'Activate Windows'.

smart 2022-04-27 07:31:28

index users modules tests backup public help info logout

SMART ONLINE EXAM MAKER AND CHECKER PLATFORM


This is the administration area of [SmartExam](#), is a platform and language independent user-friendly software to create, manage and perform online tests.

From the menu you can access the different sections of the system:

- **users**
This sections contains the forms for [insert and manage](#) users, [to select them](#) and to show the list of the ones currently [online](#).
Only the registered users granted a username and a password are entitled to access the public area of the system and perform the tests.
It is possible to specify different access levels for both the users and the different components and parts of the system (pages, forms, sections).
SmartExam also uses another security system to prevent unauthorized access based on checking the IP addresses.

Activate Windows

Login Interface

2022-04-27 07:34:20

publichelpinfoauthenticate

Authentication

Don't have a login? [Create an account.](#)

username

password

[I forgot my password](#)

authenticate

In order to access the different sections of SmartExam you must log in using the name and password provided to you by the system administrator

[jump to clock/timer](#) | [jump to navigation menu](#)

authenticate

EN | ES | FA

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Main Functions

- **Users (administrators and examinees)**
 - user and group management
 - account import and export
 - registered and online user selection
- **Question Bank**
 - management of modules, topics, questions and answers
 - management of multimedia files (images, audio, video, ...)
 - selection, import and export
- **Test**
 - test management and selection
 - evaluation of text answers
 - create pen-and-paper tests and import results (OMR)
 - real-time results and statistics with ability to delete, lock, unlock or extend available test time for each examinee
 - export results in multiple formats, including custom formats
 - delivery of results via email

Question Types

- SmartExam support 4 basic question types:
 - MCSA** (*Multiple Choice Single Answer*): The examinee can only specify one correct answer.
 - MCMA** (*Multiple Choice Multiple Answers*): The examinee may select all answers that apply.
 - ORDER**: The examinee must select the right order of the alternative answers.
 - TEXT** (*free-answer questions, essay questions, subjective questions, short-answer questions*): Answer can consist in a word, a sentence, a paragraph or a composition.

a. <input type="radio"/> b. <input checked="" type="radio"/> c. <input type="radio"/>	a. <input checked="" type="checkbox"/> b. <input type="checkbox"/> c. <input checked="" type="checkbox"/>	<table border="1"> <tbody> <tr> <td>U <input type="radio"/></td> <td>T <input type="radio"/></td> <td>F <input type="radio"/></td> </tr> <tr> <td>U <input type="radio"/></td> <td>T <input type="radio"/></td> <td>F <input type="radio"/></td> </tr> <tr> <td>U <input type="radio"/></td> <td>T <input type="radio"/></td> <td>F <input type="radio"/></td> </tr> </tbody> </table>	U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>	U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>	U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>	a. <input type="text" value="1"/> b. <input type="text" value="2"/> c. <input type="text" value="3"/>	<div> Lorem ipsum causae sunt usu ei, r probatus </div>
U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>											
U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>											
U <input type="radio"/>	T <input type="radio"/>	F <input type="radio"/>											

Questions and Answers Options

- Questions and alternative answers can contain text, images, sounds, video, animations, graphic, mathematical formulas and other types of content.
- For each question you can set:
 - an explanation
 - the type (MCSA, MCMA, TEXT, ORDER)
 - the difficulty (an integer from 0 to 10)
 - the visualization order (position)
 - the maximum time of visualization
 - full screen mode
 - the disposition of the alternative answers (vertical or horizontal)
 - the automatic advancement to the next question
- For each alternative answer you can set:
 - an explanation
 - the visualization order or the correct position
 - the keyboard selection key

Test Options

- A test can contain an arbitrary group of modules and arguments. For each of them it is possible to specify the number of questions, the type, the difficulty and the number of alternative answers.
- For each test you can set:
 - name and description
 - start/end date-time of test availability and maximum test duration
 - enabled user groups and IP addresses
 - basic points for correct, wrong and omitted answers
 - minimum points to pass the exam
 - random selection or ordering options for questions and answers
 - option to add the “no answer” as default alternative answer
 - option to display the menu of questions
 - option to display a box to leave a comment to the test
 - option to allow users to display grade results and/or detailed reports
 - test repeatability
 - test password and other advanced options

For more information contact as on email

Amin Beshir



Email:

[http://homboolloo@gmail.com](mailto:homboolloo@gmail.com)

Or [http://aminbeshir265@gmail.com](mailto:aminbeshir265@gmail.com)

Authors:

- 1. Amin Beshir**
- 2. Ashenafi Girma**
- 3. Linda Ashebir**
- 4. Afework Adane**
- 5. Mengestu Araya**