Excelsoft Corporate Overview
SARAS Assessment Management
- Excelsoft Technologies Pvt. Ltd
Over a decade of offering end-to-end eLearning experience across sectors and geographies

India’s largest eLearning solutions provider
Strong team of 800+ associates globally
Over 100 customers in 15 countries

Customer’s include world’s largest educational publishing group, India’s largest private bank, information technology solutions provider, life insurance provider, scientific research body, training & skill development company and universities.

Sustained development Product IP
About Excelsoft

- Served over 25 million end users through our customers across Corporations, Universities, and Educational Publishers
- Continuing focus on R&D and new product development
- Built capabilities in Cloud offering, Mobile technologies, 3D Virtual worlds like Second life and in Open source technologies
- Consulting approach for providing end-to-end solutions for our customer’s learning requirements

Global Clientele
SARAS AMS Product Overview
SARAS Assessment Management System: Proven & Robust

• Large scale implementations
  - Over 10 million assessments conducted annually on implementations of the AMS platform

• Versatile, used in the following areas:
  - Entrance & Recruitment Tests (Nation wide)
  - Education Assessment
    - To determine learning levels
  - Certification Exams
  - Skill test for Employees
  - Test preparatory Services
    • Diagnostic
    • Practice, mock
Manage the entire assessment process

>27 different question types including Essay type and programming.

>Organize into quizzes, tests or surveys using user friendly wizards or Offline authoring tools

>Item Analysis

>Organize into quizzes, tests or surveys using user friendly wizards or Offline authoring tools

>Schedule assessments for individual users and groups & email secure logins

>Multiple modes of delivery:
>Online or Offline
>Distributed across test centers
>Mobile: take tests anywhere, anytime
>Pen-Paper based using OMR sheets

>Analyze and share results using a variety of drill down & graphical reports.
>Ability to adjust marks for special cases.
>Inbuilt certificate printing module
Key Features

• Ability to conduct tests in Centralized and Distributed modes
  - Leverage cloud computing for high load variability

• Handles Large concurrency levels
  - Proven & Reliable: As high as 10,000 candidates taking an online examination at the same time

• Multi lingual Support
  - Support for Brazilian Portuguese for authoring and localized of all menu and UI

• While authoring
  - 27 Different Question Types
  - Unique support for essay examinations, programming questions and psychometric tests
  - Support for Workflow based authoring
  - Easily import questions from word/excel
Key Features...continued

• During Test Delivery
  - Multiple delivery modes supported: Online, distributed, offline, pen & paper and mobile
  - Fully web based, no client install required
  - Network, server, and client fault tolerant. Can recover from all such infra failures
  - Support for pen and paper delivery

• Developed IRT engine
  - Item analysis - calibration of items on exposures, difficulty level etc

• Easy to use - easy to train non IT savvy exam admins
Manages the entire High stake exam process

- Pre exam activities
  - Question & Test Authoring
  - Online Candidate registration
    - Integrated with Online payment gateway
  - On demand scheduling

- Exam delivery
  - Via test taking centers (proctored environment) OR Online
  - Center monitoring
  - Auto recovery of system during network failure
  - Modes of Delivery
    - Online, distributed, Offline, pen-paper and mobile

- Post exam support
  - Results Management
  - Declaration of Results (online/Offline)
  - Certificate printing
Pre - Event screenshots overview
Manage Users & Batches/Groups

Manage user


<table>
<thead>
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<th>First name</th>
<th>College</th>
<th>User type</th>
<th>Active</th>
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<th>View</th>
<th>View rating</th>
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27 different question types
When an ideal diatomic gas is heated at constant pressure, the fraction of the heat energy supplied which increases the internal energy of the gas is:
Re-usable question & test repository

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<td>1.2</td>
<td>1</td>
<td>Edit</td>
<td>Tryout</td>
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</table>
Easily assemble Tests

Enter test details
Random test

You are here:

Test details
Select topic and questions
Messages
Grades
Preferences
Apply stylesheet

Test name
Aptitude Test

No. of questions
10

Select question type
Check errors, Check logic, ...

Select secured questions

You want blocks
(Please Delete the Question to Enable the Block Check Box)

Select test type
Formative

Select sub type

Test tag for

Select products

Next >> Finish
On the day of the event
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<th>To</th>
<th>Generated Date</th>
<th>Type</th>
<th>CoE</th>
<th>DX</th>
<th>TC</th>
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<th>DC-C</th>
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</table>
Candidate Verification

Login name: praveen1
Password: praveen1
Candidate name: praveen
Candidate instructions + demo test

Instructions

General Instructions
- Before taking the test, please verify your Name and UserID on top left corner of the window.
- Total Questions in Test are 24. There are Three Sections and each Section having different no. of questions. Test duration is 40 Minutes.
- You can submit your test whenever you have completed. However, if the test time elapses the system will automatically submit your test.
- Do not close any window directly when you are taking test.

Navigational Instructions
- Select the correct answer for each question. Then click ‘Next’ button to move to the next question. Click on 'Preview' button to move to the previous question.
- You can Bookmark any number of questions by selecting the question and click on ‘Bookmark’ button, vice versa you can remove the Bookmark.
- You can clear your response for any question by using ‘CLEAR’ button to mark the question as un-anwered.
- After completion of your test, Click ‘Submit Test’ button to submit the test.
- Submit Test button is visible in last Section’s last question.
- Your Test Summary will be displayed once you have submitted the test.
- Keep watch on the clock on the top right corner of the exam window for time remaining. You will get the bonus “intakeeersignal” when 10 minutes is remaining for your test duration.

Shortcut Keys

<table>
<thead>
<tr>
<th>Press</th>
<th>To</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALT + S</td>
<td>Start test</td>
</tr>
<tr>
<td>ALT + N</td>
<td>View next question</td>
</tr>
<tr>
<td>ALT + P</td>
<td>View previous question</td>
</tr>
<tr>
<td>ALT + F</td>
<td>Mark / Unmark current question</td>
</tr>
</tbody>
</table>

Take a demo test

Click ‘Start’ button to take Test
Intuitive test taking interface

Question 5 of 24

The complex numbers $z_1, z_2$ and $z_3$ satisfying

$$\frac{z_1 - z_3}{z_2 - z_3} = \frac{1 - i\sqrt{3}}{2}$$

are the vertices of a triangle which is

- (A) of area zero
- (B) right-angled isosceles
- (C) equilateral
- (D) obtuse-angled isosceles
### Student report taken home post submission

Candidate Name: IGNOUI  
Roll Number: reg0130

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<thead>
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<th>Section Name</th>
<th>Serial No</th>
<th>Question Label</th>
<th>Your Choice</th>
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<td>MC-2</td>
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<td>3Q-03</td>
<td>2</td>
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<td>3Q-02</td>
<td>2</td>
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<tr>
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<td>FNLM-04</td>
<td>2</td>
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<tr>
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<td>7</td>
<td>FNLM-03</td>
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CoE Monitoring System

### Overall summary

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<th>Start time</th>
<th>End time</th>
<th>Batch</th>
<th>Test center</th>
<th>Total candidates</th>
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<th>Registered</th>
<th>Not started</th>
<th>Started</th>
<th>Submitted</th>
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### Candidate details

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<th>Role name</th>
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<th>Question Attempted</th>
<th>Additional attempts</th>
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</table>
Components used for IRT processing

1. Gathers the question responses and sends data to CYGWIN in the prescribed format
2. Persists the processed data to DB

- AMS Application
- E-Learning T & A Application
- UADP Application

CyGWIN Processing Engine

1. Processes the question details and provides the "A", "B" and "C" values, which are "Discrimination", "Difficulty" and "Guessing Factor" respectively

IRT Processing Engine

- Data Store

Reporting Analysis Tool

- Item Characteristic Curve Report
- Item Information Function Report

Adaptive Tests

- Test Information Function Report

Miscellaneous Components

Application Users will view the statistics for each individual question and notice the frequency of usage and difficulty level
Advantages of IRT and Pattern Scoring

• **Better** estimates of an examinee’s ability
  - the score that is most likely, given the student’s responses to the questions on the test (maximum likelihood scoring)

• **More** information about students and items are used

• **More** reliability than number right scoring
Item Characteristics Curve (ICC)

Item Characteristic Curve (ICC) is the basic building block of Item Response Theory. This plot is drawn for each item (question). Many terminologies derived in IRT depend on this curve. The x-axis indicates examinee (student) ability and y-axis indicates probability of answering the question.

<table>
<thead>
<tr>
<th>Tentative Student Proficiency (TSP) Theta</th>
<th>Probability Of Answering</th>
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Item Information Function (IIF) Curve

Process History
- a. Discrimination: 1.33901508
- b. Difficulty: 1.37401372
- c. Guessing Factor: 0.32515571

<table>
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<tr>
<th>(TSP) Theta</th>
<th>Probability Of Answering</th>
<th>IIF</th>
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</thead>
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Question Analysis Details
- Question Presented To No Of Students: 614
- No. Of Students Attempted Questions: 512
- No. Of Students Not Attempted: 102
- No. Of Students Correct Answer: 214
- No. Of Students Wrong Answer: 298

Question Meta Data
- Complexity: Moderate
- Score: 1.00 Marks
- Negative Marking: NO

Analysis
- Probability of answering is high for high proficient students (Under Construction)
Test Information Function (TIF) Curve

Sum of all the item information functions
Index of how much information a test is providing a given trait level
The more items at a given trait level the more information

<table>
<thead>
<tr>
<th>Tentative Student Proficiency (TSP):Theta</th>
<th>IIF</th>
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<tr>
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<td>5.003069203000</td>
</tr>
<tr>
<td>5</td>
<td>3.314799517400</td>
</tr>
</tbody>
</table>
Author once, run on web & mobile

**Backend System (PC browser)**
- author questions
- manage question banks
- create tests
- view reports/ analytics

**PC Test player**
Works on all PC browser.
Can render flash and java plugin question types.

**Basic Mobile Test player**
Xhtml-mp based test rendering for low end mobile devices

**Advanced Mobile Test player**
HTML5 based test rendering for high end mobile devices (e.g. iPhone, Android, iPad, etc.)
Basic Test Player for Low end mobile phones

Mobile Tests is the new revision service for KS4 students in association with learn.co.uk from The Guardian. To access 1000's of questions on your mobile phone and online, click on one of the subjects below to register or log in. You will be asked to provide your mobile phone number, a password and email address.

To Register click here

Each test delivers:
- 10 randomly selected questions
- Feedback on each completed test
- Your test history
- Your ranking

Choose the subject:

Business Studies

Which ray represents the gamma ray?

Which of the following are using electromagnets?

- Loudspeaker and electric motor
- Electric bell and electric motor
- Electric motor and telephone earpiece
- Electric bell and telephone earpiece
- Tape recorder and electric motor
Advanced Test player: Smartphones
Multiple choice

Matching
Reports

• Assessment overview report
  - Participant average scores, time to complete the assessment, and other useful statistics.

• Score list report
  - Results of an assessment in order of score.

• Transcript report
  - Results of assessment for a single participant.

• Grade book report
  - Final grades based on several assessments.

• Item Analysis
  - Data to maximize quality and reliability of questions

• Customized reports option
• Can be viewed by class, school or individual
SARAS Architecture benefits

SARAS Framework is a Next generation Unified Learning Platform; meets most e-Learning requirements. Benefits include:

- Interoperable, scalable and low cost of maintenance
- Customizable and flexible User interface and personalized learning
- Extensible - supports enhancements, adding new functionality
- Scalable and faster deployment model
- Support for multitenancy – true SaaS implementation
Investment in R&D, Product Dev
Applications of new technologies to learning; new learning models; devices

- Mobile applications
- Semantic Learning
- 3D Virtual Worlds
  - Second Life
  - Multiverse
  - Torque Game Engine
- Open Source tools
- Cloud computing
- Computer Adaptive Tests
- Continuous Integration Framework
- Item Response Theory
- Digital Science Laboratory
- Learning disability assessment

Competency Center

Act Now
- Troubleshooting
- Support
- Applied Research

Think Future
- Research into futuristic technologies, tools, standards and best practices
- Build Proof-of-Concept, prototypes
SARAS Assessment Case Studies
Case Study: Merittrac

- India’s largest Skills assessment company

- Summary: Migrated from QMP to SARAS and delivers 1 Million online high stake exams annually.

- Results:
  - Successfully manage large volumes & multi modal delivery (Online, distributed and pen-paper)
  - Technology partner who can ensure ZERO error
Merittrac: Case overview

Business:
India’s largest skill assessment company. 10 million tests done over 10 yrs. Testing centers across 185 cities

Business problem:
Need for a customized technology platform to handle multiple modes of delivery, Indian operational scenarios and automate all business processes

Solution:
Excelsoft SARAS Unified delivery assessment platform. Handles all processes of Pre-exam, during exam (Controller of Exam and post exam processes

Results:
- Successfully migrated customers from Question Mark Perception
- All tests conducted with ZERO disruptions
- Competitive edge
Case Study: Triumphant Institute of Management Education (T.I.M.E)

- India’s largest MBA Coaching Institute

- Summary: uses SARAS platform to deliver AIMCAT: online mock CAT series

- Results:
  - Successful additional NEW revenue stream.
  - Personalized diagnostics for test improvement

“After evaluating several online assessment engines, we zeroed in on Excelsoft’s’s SARAS due to configurability of the application and reputation of the organization.... We have conducted more than 300,000 tests on SARAS using Amazon’s cloud computing facilities in the last 5 months.”
- Mr. Subash – Project Manager, T.I.M.E”
T.I.M.E: Case overview

**Business:**
India’s largest chain of coaching institutes for CAT and various other competitive exams. 185 centers across country.

**Business problem:**
How to
> Deliver Online CAT exams as Test Prep for a large number of users across various locations?
> Leverage technology to differentiate business

**Solution:**
Excelsoft SARAS online exam solution delivered:
> inbuilt mechanisms to handle loss of power, loss of network, Low bandwidth
> All tests conducted with ZERO disruptions

**Results:**
> Successfully established a lucrative And scalable NEW revenue stream
>> **3.5 lac tests** over a span of **12 weeks** for **75,000 students**
> Max concurrency of 8000 tests per day
# Engg colleges using Testing & Assessment

## Existing Customer and Usage

1. 125 colleges of Anna University Trichy
2. College students via US Publisher Pearson Education  
   - Deployed in a datacenter with about 120 servers  
   - Over 3 million users
3. College students via UK Publisher WKE  
   - 80,000 users  
   - 25,000 tests per week
4. Colleges in UK: TOIA (Technology for Online Interoperable Assessments)  
   - Downloaded by 700 universities and colleges in UK
5. Several other small and medium sized customers including universities and corporations

## Solution Overview

Comprehensive platform for managing Tests and Assessments with following core features:

- Creation of Question items (29 different types)
- Managing Item level Metadata
- Managing Question Bank
- Creation of Tests / Quizzes / Assessments
- Managing Assessment level Metadata
- Managing Learning Resources
- Scheduling Assessments
- Test Taking
- Response Processing
- Results, Reports and Feedback
- Administration – User Management, Group Management, Announcements etc.
Engg colleges using e-Learning & Assessment

<table>
<thead>
<tr>
<th>Customers &amp; Usage</th>
<th>Solution Overview</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Anna University:</td>
<td>SARS LMS with Assessment functionality. Core features include</td>
</tr>
<tr>
<td>245,000 students</td>
<td>• Course Management</td>
</tr>
<tr>
<td>2. VTU</td>
<td>• Content Presentation; SCORM Player</td>
</tr>
<tr>
<td>125,000 students</td>
<td>• Activity Tracking</td>
</tr>
<tr>
<td>3. Syrian Virtual University</td>
<td>• Assessment Management</td>
</tr>
<tr>
<td>4. Dutch Publisher</td>
<td>• Collaboration (Synchronous and Asynchronous)</td>
</tr>
<tr>
<td>50,000 users</td>
<td>• Reports</td>
</tr>
<tr>
<td>5. Swedish Publisher</td>
<td></td>
</tr>
<tr>
<td>75,000 users</td>
<td></td>
</tr>
</tbody>
</table>
SARAS Assessments Product Roadmap

2010-2011
- Fine tuning in DRT model for Corporates, Vocational
- Editor in Test Player for keying-in Equations, Graphs
- Essay Marking
- Support for Psychometric Tests
- Adaptive Testing using IRT
- Collaborative Learning for feedback and solution around a question
- Multiple Test Sequencing
- More work on Item and Test Analysis Reports
- Skill assessment leading to development plan

2011-2012
- Generate the test as encrypted PDF and send it over network to printer memory for printing
- Workflow for assignment marking
- Learning disability testing
- USB for delivering tests in a secured & isolated environment
- Audio Responses
Thank You

dev.r@excelindia.com