

## CASE STUDY · CUSTOM SOFTWARE DEVELOPMENT

# Learner-centric Digital Education Platform for Italy's largest ICT community

Business Analysis

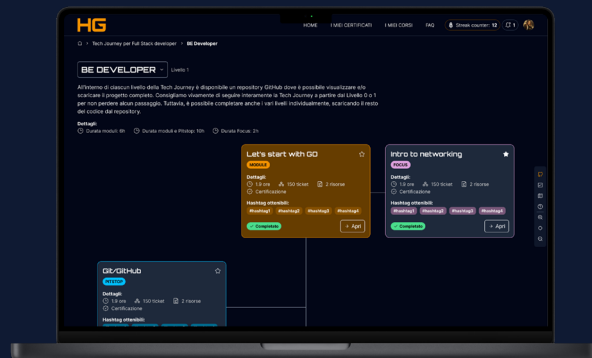
Discovery

Microservices

Design Thinking

Game Development

24x7 Management & Maintenance



## The challenge

HackersGen's strong educational mission and rapid growth required answers to:

- A growing number of students and educators
- Multiple learning paths and content formats
- Live sessions and community
- Project submissions and award management
- Teacher tools for class management and reporting
- Consistent user experience across platform areas

## 6 core objectives

### 1 Platform experience

Clean, intuitive interface with clear navigation for the different types of users.

### 2 Teacher's Tool

Create virtual classes, invite students, monitor progress and access reports.

### 3 Ready for growth

Scalable, maintainable, cloud-native microservice architecture with consistent design across modules.

### 4 Learning & Community

Learning paths, live sessions, events, challenges and gamified experiences on a stable, national-scale platform.

### 5 Automate

Automated notifications and admin management.

### 6 Long-term Reliability

Ongoing monitoring, maintenance and 24x7 management.

**The core challenge was not only technical, but also educational and operational.**

The answer: a custom, scalable digital solution & infrastructure - modern and easy-to-use UI, strong teacher and student tooling, scalable cloud architecture, automated workflows and continuous post-launch support. Simple, inclusive, engaging and reliable for students, teachers and schools.

## A commitment from SORINT.lab: building a full educational product

### Discovery & alignment

Educational mission, user needs, operational constraints.

### Business analysis

Workflows for students, teachers, admins and participants.

### UI/UX design

Clear, engaging, accessible interfaces.

### Architecture & dev

Scalable platform, reusable components, cloud deploy.

### Deploy & QA

Controlled UAT, reliable production operation.

### 24x7 management

Monitoring, issue resolution, continuous improvement.

## A cloud-native & scalable platform

Microservices-based architecture running on **Amazon EKS**, to scale on demand, maintain high availability, isolate services for easier maintenance and deploy updates safely and consistently.

### Each microservice is managed through:

- Container images on Amazon ECR
- Traffic routing via AWS Application Load Balancer
- Health checks: traffic only to healthy services
- Sensitive configuration via secure secrets
- Automated deployment with Argo and CI/CD

## Quality & rapid development

|                |                                 |
|----------------|---------------------------------|
| Frontend       | Vue 3, TypeScript, Tailwind CSS |
| Backend        | Go                              |
| Database       | PostgreSQL                      |
| Integrations   | Vimeo, Credly, Prismic          |
| CI/CD          | Argo, CI/CD pipelines           |
| DevOps & infra | AWS, Kubernetes, Docker         |
| Testing        | Vitest, Playwright              |

### A shared monorepo for consistency

Centralizes brand colors and design tokens, notification components, form validation rules, analytics tracking and reusable UI behavior.

### Guaranteeing

- Shared updates applied across the whole platform
- Visual and functional consistency
- Faster, more reliable future development

## Core features

### On-demand & live learning For teachers:

- Create and manage virtual classes
  - Invite students via link, email or XLS upload
  - Monitor attendance, view test results and answers
  - Issue certificates
  - Statistics across modules, levels, live and on-demand content
- Fun for students, practical teaching and monitoring for teachers

### Tech Journey

A visual, customizable learning path guiding students toward their desired specialization.

- Video lessons, progress tracking, downloadable resources
- Community discussions, final quizzes
- Badges and certificates

### Gianfranco Marilli School Contest

- Automated admission, confirmation feedback, validation, submission notification and consent handling for minors
  - Structured project submission panel for teachers
- A more efficient, transparent and scalable award process.

### Event, community & engagement

- Daily streak counter, personal profile dashboard
- Achievement tracking, certificate management
- Leaderboards by school and class, CV export
- Event schedule, invitation tracking, sponsor visibility

### Skill gamification

Hacker Fox · Fox Tower · Foxenja · Rocket Space — games developed to enhance precision, reaction speed, strategic thinking and analytical ability.

## Retaining & growing

A free educational ecosystem helping students and educators access practical, up-to-date ICT skills in software development, cybersecurity, cloud computing and AI. Launched in 2020, it has grown into Italy's largest community of its kind.

**11,000**  
registered students

**700**  
teachers involved

**70,000**  
annual visits

**30,000**  
hours of annual learning



"HackersGen is not just a learning platform — it is a complete, perfectly designed and scalable community management solution. They clarified our requirements, designed intuitive products, built a modern cloud-based solution, automated so many processes we did not know possible, and continued to maintain the platform for us. We truly believe technology should not become a new source of exclusion, but a concrete driver of growth, guidance and opportunity for the next generation."

**Michele Finazzi — HackersGen Project Leader**

HackersGen is a project by:



Fondazione  
Gianfranco Marilli E.T.S.



HackersGen is a **finalist** in the 2026 Global EdTech Prize in the Nonprofit category.