High-Level System Modules

(Team Assignable, End-to-End)

1. Admin Dashboard & Test Builder Module

(Frontend + Backend + APIs for test creation & management)
Handles everything the test setter/admin touches.
Includes:

- Admin UI (dashboard, test cards, reports preview, settings)
- Test creation workflow (designation, tech stack, JD parser)
- Section builder (MCQ, coding, scenario, reasoning)
- Question approval interface
- Test scheduling (manual + ATS triggered)
- Test library (reuse existing tests & questions)
- Test metadata management (duration, difficulty, etc.)

Subcomponents:

- Admin web UI
- Test schema engine
- JD-to-topic AI suggestion microservice
- Collaboration & versioning system (optional)

*Team: Ishaan, *open for all*

2. AI Test Generation Engine

(Question generation + coding test case generation)
Fully responsible for generating test content.
Includes:

- MCQ generation
- Coding question + test case generation
- Scenario-based question generation
- Difficulty scoring engine
- Topic extraction (from JD / tech stack)
- Question rationales + hints generation
- Embedding-based knowledge base for question reuse

*Team: Mukesh, Satyam *ishaan*

3. Candidate Test Interface (Delivery Engine)

(Frontend test UI + backend for live test session management)
Handles the entire test-taking experience.
Includes:

- Login + SSO integration
- Section navigation UI
- Timer engine
- MCQ interface
- Coding editor (Monaco/CodeMirror + sandbox)
- Scenario/reasoning UI
- Autosave + crash recovery
- UI for warnings / monitoring status
- Final submission workflow

Submodules:

- Session state service
- Autosave service
- Test delivery API

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4. Secure Coding Execution & Sandbox Engine

(Isolated backend for running code safely)
Includes:

- Multi-language code execution environment (Docker, Firecracker)

- Test case runner
- Time/memory sandbox limits
- Auto-save of code state
- Output capturing + logs

*Team: Anjali, Satyam, *Ishaan*

5. Proctoring & Monitoring System

(Camera + eye tracking + activity detection + alerts)
Includes:
- WebRTC camera capture
- Real-time eye-tracking (ML model or integrated API)
- Browser lock enforcement
- Tab switch/blur monitoring
- Warning system (with thresholds)
- Suspicious activity logging
- Proctor monitoring console (multi-candidate view)

Submodules:
- Proctoring microservice (video ingest)
- Suspicious activity inference engine
- Warning & rule engine

Team: Harsh. P., Sawrang, Sandeep

6. Evaluation & Reporting Engine

(Automated scoring + analytics + report generation)
Includes:
- Automatic scoring for MCQs, coding, reasoning
- AI code review (architecture, efficiency, patterns)
- Consistency score generator
- Suspicious activity summarizer (editable logs)
- PDF/CSV report generator
- Dashboard analytics for HR
- Export + ATS push

Submodules:
- Scoring logic service
- AI analysis service
- Reporting microservice

Team: Swarang, Sandeep, Harsh. S.

7. Plagiarism Detection & Analysis Engine

(Code + text plagiarism detection)
Includes:
- Code similarity analysis (AST matching, embeddings)
- Text similarity
- External data source checks
- Report-level plagiarism flagging

*Team: Anjali, Mukesh, Swarang *open for all*

8. Integration & Enterprise Services

(ATS/HRIS integration + auth + org management)
*right now we will provide **oauth and org management only**
Includes:
- User management (admins, recruiters, candidates)
- Auth (SSO, SAML, OAuth)
- ATS integrations (Greenhouse, Lever, etc.)
- HRIS data sync
- Webhooks + API endpoints

*Team: Ishaan, *open for all*

9. Cloud Infrastructure & DevOps

(Scalability, deployments, observability, infra)
Includes:

- CI/CD pipelines
- Container orchestration (K8s)
- Logging, monitoring, alerting
- Video storage (encrypted)
- CDN for candidate experience
- Security compliance (GDPR, SOC2 prep)

*Team: Ishaan, Satyam, *open for all*

10. Central Database & Data Model Layer

(Test schema, candidate data, logs)
Includes:

- Test metadata models
- Question library
- Sessions + autosave state
- Code results + logs
- Proctoring data storage
- Audit logs
- Reports storage

*Team: Ishaan, Mukesh, *open for all*