Case Study 1: AWS Cost Optimization for University Management System

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Client Overview:

A large university consortium managing a centralized **Veer Bhadur Purvanchal University** serving **1.8 million students** across multiple campuses. The platform handles:

- Student registrations and attendance

- Exam scheduling and result publishing

- Staff portals and academic dashboards

- Notifications, document uploads, and file storage

Pre-Optimization Monthly AWS Spend: ₹50,000

Objective:

Reduce cloud infrastructure costs while maintaining platform uptime, data integrity, and academic peak-load performance.

Optimization Actions Taken

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1. Right-Sizing EC2 Instances

- Migrated from over-provisioned `m5.large` instances to **t3.medium** burstable EC2 types for internal modules (attendance, notice board).

- Set **EC2 instance scheduler** to auto-stop non-essential services after academic hours.

Savings: ~₹10,000/month

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2. Storage Tiering on S3

- Old documents, transcripts, and inactive student data were moved to **S3 Glacier Deep Archive**.

- Enabled **lifecycle policies** to automate archival after 90 days.

Savings: ~₹3,000/month

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3. Database Optimization

- Converted RDS MySQL to **Graviton2-backed instance (**`db.t4g.medium`**)** with 1-year Reserved Instance.
- Enabled **storage autoscaling** and optimized read replicas.

Savings: ~₹1,500/month

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4. Log Retention and Snapshot Pruning

- Reduced **CloudWatch Logs** retention to 14 days.
- Automated **snapshot deletion** for backups older than 7 days using Lambda.

Savings: ~₹500/month

Results Summary

Metric	Before	After	Savings
Monthly AWS Cost	₹50,000	₹35,000	₹15,000 (~30%)
Annualized Savings	—	—	₹1,80,000/year

Conclusion

Through intelligent instance sizing, storage tiering, and automation of logs and backups, **Quaere Tech** helped the university reduce AWS costs by **30%**, maintaining full academic operations across 18 lakh students with no service interruption.