AWS Costing Breakdown - CV Processing Portal

This document provides a comprehensive breakdown of estimated AWS costs for hosting the CV Processing Portal backend and associated services in a production environment. Costs are calculated based on average usage for a small to medium workload over a one-month period in the Asia Pacific (Mumbai) region (ap-south-1).

## 1. Amazon EC2 (Elastic Compute Cloud)

- Service Purpose: Hosting the Spring Boot backend  
- Instance Type: t3.medium (2 vCPU, 4 GB RAM)  
- Pricing: ~ $0.0416/hour  
- Monthly Estimate:  
 - 24 hours/day × 30 days = 720 hours  
 - 720 × $0.0416 = $29.95/month

## 2. Amazon RDS (PostgreSQL)

- Service Purpose: Storing application data  
- Instance Type: db.t3.micro with 20 GB storage  
- Pricing:  
 - Instance: ~ $0.017/hour → 720 × $0.017 = $12.24/month  
 - Storage: 20 GB × $0.115/GB = $2.30/month  
 - Total: ~$14.54/month

## 3. Amazon S3 (Simple Storage Service)

- Service Purpose: Storing uploaded CV files securely  
- Usage Estimate: 5 GB total storage, 1000 PUT and 500 GET requests  
- Pricing:  
 - Storage: 5 GB × $0.023 = $0.12/month  
 - PUT requests (1000 × $0.005/1000) = $0.005  
 - GET requests (500 × $0.0004/1000) = $0.0002  
 - Total: ~$0.13/month

## 4. Amazon CloudWatch

- Service Purpose: Monitoring EC2 logs, alarms, and metrics  
- Usage Estimate: 5 custom metrics, 3 alarms, 1 GB logs/month  
- Pricing:  
 - Metrics: 5 × $0.30 = $1.50/month  
 - Alarms: 3 × $0.10 = $0.30/month  
 - Logs: 1 GB × $0.50 = $0.50/month  
 - Total: ~$2.30/month

## 5. Amazon IAM (Identity and Access Management)

- Service Purpose: Securing access and managing roles and permissions  
- Pricing: Free of charge for policy and user management.

## 6. Amazon Route 53 (Optional - For Domain)

- Service Purpose: Custom domain with HTTPS (if used)  
- Pricing:  
 - Hosted Zone: $0.50/month  
 - DNS queries: negligible for small traffic  
 - Total: ~$0.50/month (only if using Route 53)

## Total Monthly AWS Estimate (Without Free Tier)

|  |  |
| --- | --- |
| Service | Estimated Cost (USD/month) |
| EC2 | $29.95 |
| RDS | $14.54 |
| S3 | $0.13 |
| CloudWatch | $2.30 |
| IAM | $0.00 |
| Route 53 (opt) | $0.50 |
| Total | ~$47.42/month |

## Notes

- Pricing is region-specific and based on Asia Pacific (Mumbai).  
- Usage is calculated for continuous 24x7 uptime.  
- Does not include AWS Free Tier benefits.  
- For production-grade deployments, costs may vary based on traffic and storage growth.

## Recommendations for Cost Optimization

- We can auto-scaling for EC2 based on usage.  
- We can switch to RDS Aurora Serverless for dynamic workloads.  
- We can implement S3 Lifecycle Policies to move files to cheaper storage classes.  
- We can use CloudWatch custom dashboards to reduce log retention costs.