

הצעת פרויקט – TaskFlow Pro

פיתוח תוכנה מתקדם בענן

Project Proposal: TaskFlow Pro

Group Name: Group 3

Presenters: Alaa Yehya – 207428640

Mohamed Abo Full – 213756836

Email: 3alaayahya@gmail.com

Executive Summary:

Modern organizations face significant challenges in task management. Small teams often rely on simple todo apps that lack essential features, while enterprise solutions are prohibitively expensive and complex. This creates a gap in the market for a scalable, feature-rich, yet cost-effective task management solution.

Problem:

Current task management solutions fail to address the needs of growing organizations:

- Personal todo apps lack role-based access control and analytics
- Enterprise systems require significant infrastructure investment
- No middle-ground solution offers professional features at reasonable cost
- Bulk operations and administrative oversight are typically missing
- Email notifications and audit trails are not integrated

Solution:

TaskFlow Pro is a serverless task management system built entirely on AWS cloud services. It provides enterprise-grade features without the enterprise costs by leveraging pay-per-use serverless architecture. The system automatically scales from small teams to large organizations while maintaining consistent performance and cost efficiency.

Key Features:

- **Role-Based Access Control:** Separate user and admin roles with group-based permissions
- **Comprehensive Task Management:** Create, read, update, delete tasks with priorities and due dates
- **Bulk Operations:** CSV import/export for efficient task management
- **Real-Time Notifications:** Email alerts via SNS for task events
- **Visual Analytics Dashboard:** Donut charts showing task distribution by priority
- **Modern UI Features:** Dark mode, search, filtering, and responsive design

- **Task Completion Tracking:** Mark tasks as complete with visual indicators
- **Overdue Task Alerts:** Automatic highlighting of overdue tasks
- **Audit Trail:** Complete logging of all system activities via CloudTrail

Solution and Tools/Technologies (AWS Services):

- **Amazon S3:** Static website hosting for the React-based frontend
- **Amazon Cognito:** User authentication with Gmail-only registration and group management
- **AWS Lambda:** Four serverless functions handling business logic
- **Amazon DynamoDB:** NoSQL database for task and analytics storage
- **Amazon API Gateway:** RESTful API with Cognito authorization
- **Amazon SNS:** Email notifications for task events
- **Amazon SQS:** Queue for asynchronous bulk import processing
- **Amazon EventBridge:** Daily analytics calculation scheduling
- **AWS Systems Manager:** Parameter Store for configuration management
- **AWS CloudTrail:** Comprehensive audit logging
- **Amazon CloudWatch:** Automatic logging and monitoring

