**Process Monitor System - Project Report**

**1. Project Overview**

This project provides a real-time system to monitor processes running on a machine.  
It includes a Python agent, Django REST API backend, and an interactive web frontend.  
Users can view processes in an expandable tree with CPU and memory usage bars.

**2. Technology Stack**

* Python 3
* Django 4
* Django REST Framework
* psutil, requests (Python libraries)
* HTML, CSS, JavaScript, jQuery
* DataTables.js

**3. Architecture Diagram**

[Agent (.exe)] --> [POST /api/process-data/] --> [Django Backend (SQLite)]

Then Frontend fetches data via [GET /api/view-processes/?hostname=HOSTNAME]

**4. Key Features**

* Collects process info: Name, PID, CPU%, Memory%, Parent/Child relations
* Displays hierarchical expandable process tree
* CPU and Memory shown using colorful progress bars
* Secured with API Key authentication

**5. How to Run**

1. Install Python dependencies from requirements.txt
2. Run Django server (python manage.py runserver)
3. Run agent (python agent.py or agent.exe)
4. Open browser at http://127.0.0.1:8000/
5. Monitor all system processes live!

**6. API Endpoints**

* **POST** /api/process-data/ : Agent sends system process data.
* **GET** /api/view-processes/?hostname=HOSTNAME : Frontend fetches latest data.

**7. Requirements**

* Django>=4.0
* djangorestframework>=3.14.0
* psutil>=5.9.0
* requests>=2.25.0

**✅ Project Status**

* Agent EXE ✔️
* Backend API ✔️
* Frontend Expandable Tree ✔️
* CPU/Memory Bars ✔️
* API Authentication ✔️
* Full Documentation ✔️