Statement of Work (SOW)

Project: DOC Forecasting & Budget Automation System

Tech Stack: Vue.js (Frontend) + Python (FastAPI Backend) + PostgreSQL

# 1. Project Overview

We are building a software system to replace the Excel-based “DOC Budget” model.   
The system will allow users to upload data, run automatic forecasts for any number of years,   
and instantly see dashboards, reports, and budgets. It will also include a Parent Stock (PS) Placement Schedule   
to show when batches of birds are placed, active, or completed.   
  
Also get the real data and show comparison between the real data and the forecast.

# 2. Key Challenges

- Manual Excel work increases errors  
- Hard to track long-term placement schedules  
- No clear visibility of when a house or flock is free/ready for new placement

# 3. Proposed Solution

- Rules engine with all Excel formulas replicated  
- Placement scheduling module with timelines (active/free periods)  
- Forecasts and budgets generated automatically  
- SAP actuals upload for variance analysis  
- Dashboards and exportable reports  
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# 4. Benefits

- Accurate, fast forecasts without spreadsheet errors  
- Visual schedule of flock placements to manage housing and resources  
- Clearer budgets and financial control  
- Real-time decision support

# 5. Scope of Work

A) Data Input  
- Upload placement schedules (flock, house, start date, quantity)  
Note: user will provide cut off data as the system is already running  
- Enter standards (egg production, mortality, feed)

- Import actual data (flock, house, start date, quantity, cut of data week wise)  
- Excel/CSV import support  
  
B) PS Placement Schedule  
- Calendar-style or Gantt-style view of parent stock flocks  
- Shows placement date, active production period, expected depletion trend, end date  
- Highlights “Free Periods” when a house is empty(Sidewise, Batchwise) and available for new placement  
- Connects directly to forecast calculations (eggs, DOC , feed)

Note: (It will take about 71 weeks to free a shed after a batch starts)  
  
C) Forecasting Engine  
- Calculates projections for any chosen number of years  
- Runs “what-if” scenarios (Base/Best/Worst)  
  
D) Dashboards & Reports  
- KPIs: DOC output, eggs, hatchability, feed/med use, costs, revenues, margins  
- Placement schedule   
- No of Egg produce and hatching eggs  
- No of DOC  
- Feed Requirement  
- Shed Fee timeline  
- Comparison actual vs forecast data  
- Show report on Sidewise and Batchwise  
  
E) Budget Automation  
- Auto-generates budget by period and cost center  
- Variance analysis by uploading SAP actuals  
  
F) User Access & Data Security  
- Roles: Admin, Finance, Planner, Viewer  
- Database with daily backups

# 6. Key Equations Explained in Simple Language

1. Birds on hand – Start with placements, subtract mortality = remaining birds.  
2. Egg production – Remaining birds × standard egg rate = total eggs.  
3. Settable eggs – Remove rejects (cracks, dirt, double yolks).  
4. DOC output – Apply hatchability %, then remove culls = saleable chicks.  
5. DOC sales & revenue – Saleable DOC – internal use = DOC sold × price = revenue.  
6. Feed & medicine use – Birds × daily standard × days.  
7. Costs – Feed cost + medicine cost + hatchery cost + overhead.  
8. Profit – Revenue – costs = margin.  
9. Budget vs Actuals – Compare planned vs actual (volume, price, cost variance).  
10. Placement Schedule Logic – Each flock has start and end; active flocks contribute to output and costs, ended flocks mark houses as “free.”

# 7. Technical Requirements

- Frontend: Vue.js 3 + Tailwind + interactive charts/schedules  
- Backend: Python (FastAPI), Pandas/NumPy  
- Database: PostgreSQL  
- Hosting: Cloud (Docker)  
- Exports: Excel (XLSX) and PDF

# 8. Deliverables

- Vue.js + Python application  
- Forecasting engine with placement schedule integration  
- Placement schedule module (timeline of flocks, free/active status)  
- Dashboards + reports (Excel/PDF)  
- Budget automation + variance reports  
- Documentation and training

# 9. Assumptions

- Excel master data (including placement timelines) will be provided  
- SAP integration starts as file uploads  
- KPIs and report formats will be finalized in Discovery

# 10. Acceptance Criteria

- Forecasts match Excel results within ±0.1%  
- Placement schedule clearly shows active flocks and free periods  
- Reports export correctly to Excel/PDF  
- Role permissions function properly

# 11. Timeline (~6 Weeks)

- Week 1 – Discovery: map Excel formulas and placement schedule logic  
- Weeks 2–3 – Build backend + input screens  
- Week 4 – Dashboards + placement schedule view  
- Week 5 – Testing, training, deployment

# 12. Process Flowchart

The following flowchart illustrates the overall process from Parent Stock placement to profit calculation:

