INNOMATICS
TECHNOLOGY HUB

Data Science Internship – February 2026

Internship Task Documentation

Task Instructions

1. Log in to your **LMS** and navigate to:
   Assessment & Task → Task 5: Function-Based Problem Solving
2. Open the **Google Form** provided in the task section to access your assigned Python problem.
3. Solve the problem using either **Jupyter Notebook** or **Google Colab**.
   Save your solution file in **.ipynb** format.
4. Upload (push) the `.ipynb` file to your **GitHub repository**.
   Ensure the repository link is in **HTTPS format** (e.g., `https://github.com/username/repository-name`).
5. Complete the **Google Form** by entering your required details and pasting your **GitHub repository HTTPS link**, then submit the form.

Submission Guidelines

- Your code must be **clean, well-structured, and properly organized**.
- Include **clear comments** explaining your logic wherever necessary.

Only submissions with a valid **GitHub HTTPS link submitted through the Google Form** will be considered for evaluation.

ASSIGNMENT 5 – Real-World Function-Based Problem Solving

This assignment focuses on real-time industry-based problems using:

- Functions
- Conditional Logic
- Loops
- Lists and Sets
- Mathematical Operations

Each problem simulates a real-world system used in industries like Social Media, Healthcare, Agriculture, Banking, IT, and Energy.

Problem 1: Social Media – Post Engagement Analyzer

Problem Statement

Create a function to analyze engagement on a social media post.

Rules

- Calculate total likes
- If Total Likes ≥ 1000 → Viral Post
- Otherwise → Normal Engagement

Real-Time Use

- Social media analytics platforms
- Marketing dashboards

Hint

- Use function
- Use loop for calculations

Expected Output Format

Total Likes: 1050
Post Status: Viral Post

Problem 2: Healthcare – Medicine Stock Alert System

Problem Statement

Create a function to monitor medicine stock levels.

Rules

- Stock < 10 → Low Stock Alert
- Stock ≥ 10 → Stock Sufficient

Real-Time Use

- Pharmacy management systems
- Hospital inventory tracking

Hint

- Use function
- Use conditional logic

Expected Output Format

```
Medicine Stock: 6
Status: Low Stock Alert
```

Problem 3: Agriculture – Rainfall Adequacy Checker

Problem Statement

Create a function that analyzes seasonal rainfall data.

Rules

- Calculate average rainfall
- Average ≥ required level → Adequate Rainfall
- Otherwise → Inadequate Rainfall

Real-Time Use

- Climate monitoring systems
- Irrigation planning tools

Hint

- Use function
- Use loop and math operations

Expected Output Format

```
Average Rainfall: 72
Rainfall Status: Adequate Rainfall
```

Problem 4: Social Media – Duplicate Account Detection

Problem Statement

Create a function to detect duplicate usernames in a system.

Rules

- If duplicates exist → Flag accounts
- Else → Accounts are unique

Real-Time Use

- Platform moderation
- Fraud detection systems

Hint

- Use function
- Use set data structure

Expected Output Format

Duplicate Accounts Found: Yes

Problem 5: Healthcare – Appointment Eligibility Checker

Problem Statement

Create a function to check whether a patient is eligible for an appointment slot.

Rules

- Age ≥ 18 → Eligible
- Age < 18 → Not Eligible

Real-Time Use

- Hospital appointment systems
- Healthcare portals

Hint

- Use function
- Use condition checks

Expected Output Format

```
Patient Age: 21
Eligibility Status: Eligible
```

Problem 6: Agriculture – Premium Crop Price Filter

Problem Statement

Create a function that filters crop prices above a premium threshold.

Rules

- Price > ₹2000 → Premium Crop
- Else → Regular Crop

Real-Time Use

- Market analytics
- Export pricing systems

Hint

- Use function
- Use list filtering logic

Expected Output Format

Premium Crops: [2500, 3200]

Problem 7: System Monitoring – Application Health Checker

Problem Statement

Create a function to evaluate application health based on error count.

Rules

- Errors = 0 → Healthy
- Errors ≤ 5 → Minor Issues
- Errors > 5 → Critical Issues

Real-Time Use

- System monitoring tools
- IT operations dashboards

Hint

- Use function
- Use conditional statements

Expected Output Format

```
Error Count: 7
System Status: Critical Issues
```

Problem 8: Banking – Daily Transaction Limit Checker

Problem Statement

Create a function to validate daily transaction amount.

Rules

- Daily limit = ₹50,000
- Amount within limit → Approved
- Amount exceeds limit → Rejected

Real-Time Use

- Banking systems
- Fraud prevention systems

Hint

- Use function
- Use conditional logic

Expected Output Format

```
Transaction Amount: 60000
Transaction Status: Rejected
```

Problem 9: E-Learning – Student Attendance Eligibility System

Problem Statement

Create a function to calculate attendance percentage and check exam eligibility.

Rules

- Attendance ≥ 75% → Eligible
- Attendance < 75% → Not Eligible

Real-Time Use

- Learning management systems
- Internship tracking platforms

Hint

- Use function
- Use list and loop

Expected Output Format

```
Attendance Percentage: 80.0
Exam Eligibility: Eligible
```

Problem 10: Smart Electricity Bill Analyzer

Problem Statement

You are building a smart electricity billing system for residential users.
Create a function that calculates the electricity bill and classifies usage level based on units consumed.

Billing Rules

- First 100 units → ₹3 per unit
- Next 100 units (101–200) → ₹5 per unit
- Above 200 units → ₹7 per unit

Usage Classification

- Total bill < ₹500 → Low Usage
- ₹500 – ₹1500 → Moderate Usage
- ₹1500 → High Usage

Real-Time Use

- Smart meter systems
- Electricity board billing software
- Energy consumption analytics

Hint

- Use function to calculate bill
- Use conditional logic for slabs
- Use return values (bill and usage status)