Shambhavi Kumari
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Internship

QC Microbiology Intern | Centrient Pharmaceutical Company **Jul 2025 – Aug 2025**

- Conducted media preparation and sterilization (MCB, SCDM, Peptone) and operated autoclaves under aseptic conditions, ensuring contamination-free testing.
- Performed water testing, product testing, and environmental monitoring (air, surface, and personnel sampling), following SOPs, GMP, and biosafety protocols.
- Carried out microbial culture inoculations and sterility testing using *Bacillus subtilis* and other strains, supporting pharmaceutical product quality control.
- Worked in Laminar Air Flow (LAF) benches for aseptic handling and maintained detailed SOP logbooks for media, reagents, and QC activities.
- Gained cross-functional exposure to the Bulk Drug Lab, Raw Material Lab, and Instrumentation Lab, learning analytical techniques including normality checks, moisture analysis, optical rotation, and chromatography methods.
- Strengthened knowledge of quality culture, GMP compliance, and pharmaceutical documentation practices, ensuring reliability in QC processes.

Projects

Automated Washroom Light Traffic Light Control System | 8051 Microcontroller, Assembly Language ***Aug 2023***

- Designed and implemented an automated traffic light control system using the 8051 microcontrollers to efficiently manage signal sequencing at intersections.
- Programmed in assembly language to perform arithmetic, logical, and control operations for accurate light transitions and timing cycles.
- Interfaced LEDs, switches, timers, and seven-segment displays with the microcontroller to simulate real-world traffic flow and pedestrian crossings.
- Utilized delay subroutines and timer interrupts to ensure precise control of light durations and smooth transitions.
- Gained practical experience in registers, memory addressing, I/O port programming, and interrupt handling, strengthening embedded systems knowledge.

Heart Disease Prediction | Machine Learning, Python, Scikit-learn

- Developed a **machine learning model** to predict the likelihood of heart disease using clinical and patient health records.
- Implemented and compared multiple algorithms (**Logistic Regression, Random Forest, Decision Trees, KNN**) to determine the most accurate predictive model.
- Performed **data preprocessing, feature selection, and normalization** to enhance model accuracy and reduce bias.
- Evaluated model performance using **confusion matrix, precision, recall, F1-score, and ROC-AUC curve** for effective result validation.
- Built a **user-friendly interface** for inputting patient data and generating real-time predictions.

Certificates / Certifications

Skill Development Course – *The Open University* **Sep 2023**

Fundamental English MOOC – *Saylor.org* **Sep 2023**

Business English – *Saylor Academy* **Jun 2024**

Skills

Languages Python, Bio python.

Domain Skills: Data Analysis, CRISPR, Bioremediation, Biofertilizers, Responsive Web Design, Scripting in Bio Python

Dry Laboratory Skills: Data analysis, bioinformatics tools, in-silico gene/protein analysis, molecular docking, sequence alignment, statistical modelling

Wet Laboratory Skills: Media preparation, microbial culture handling, PCR/RT-PCR, gel electrophoresis, blotting, spectrophotometry, water & product testing, environmental monitoring, aseptic techniques, use of Laminar Air Flow

Education

Lovely Professional University **2023-2027**
Bachelor's in technology- Biotechnology- CGPA: 7.2 *Phagwara, Punjab*

Tender Heart Senior Secondary School **2018 – 2019**
12th — Percentage: 86% *Ranchi, Jharkhand*

Tender Heart Senior Secondary School **2016 – 2017**
10th — CGPA: 7 *Ranchi, Jharkhand*