

# **INTERNSHIP REPORT**

Submitted to



**The IIHMR University, Jaipur**

In partial fulfillment of the requirements for the award of the degree  
of Master of Business Administration (MBA) in  
**Healthcare Analytics**

by

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## **1. Introduction**

Internship is a vital component of the MBA (Healthcare Analytics) programme at IIHMR University, Jaipur. The internship period provided an opportunity to apply theoretical knowledge gained during academic coursework to real-world research and analytical settings. The internship was undertaken under the direct supervision and guidance of Dr. Kumar Parimal Shrestha, Assistant Professor, IIHMR University, Jaipur, from February 25 to June 09, 2026.

The internship focused on developing competencies in healthcare data analytics, research methodology, academic writing, and evidence-based problem-solving within the healthcare management domain.

## **2. Objectives of Internship**

The key objectives of this internship were as follows:

- To gain practical exposure to applied healthcare analytics research under expert academic supervision.
- To develop skills in secondary data collection, cleaning, and analysis using Python and relevant data science tools.
- To understand the application of machine learning models in solving real-world healthcare management problems.
- To enhance academic writing and research documentation skills through structured dissertation work.
- To develop professional competencies in data-driven decision-making and evidence-based healthcare management.

## **3. Organizational Profile**

IIHMR University, Jaipur, is a premier institution dedicated to health management education and research in India. Established with a vision to produce competent healthcare professionals, the university offers postgraduate programmes including MBA in Hospital and Health Management, Pharmaceutical Management, Development Management, and Healthcare Analytics.

The university houses a dedicated faculty of experienced academicians and researchers who guide students in applied research projects. The Department of Healthcare Analytics focuses on leveraging data science, artificial intelligence, and machine learning to address contemporary healthcare challenges.

**Supervisor:** Dr. Kumar Parimal Shrestha, Assistant Professor, IIHMR University, Jaipur

**Internship Period:** February 25, 2026 – June 09, 2026

## **4. Services Provided by Organization**

IIHMR University provides a comprehensive academic and research environment with the following services and facilities:

- Access to academic databases, journals, and research repositories for literature review.

- Computational resources and software tools including Python, statistical packages, and data visualization platforms.
- Regular mentorship sessions and academic guidance from faculty experts.
- Structured research training covering research design, data analytics, and scientific writing.
- Access to national and international datasets relevant to healthcare analytics research.
- Support for plagiarism checking through Turnitin software.

## **5. Key Activities / Projects Undertaken Other than Dissertation**

During the internship period, the following key activities were undertaken in addition to the primary dissertation work:

### **5.1 Literature Review and Research Gap Analysis**

Conducted an extensive review of peer-reviewed literature on health insurance fraud detection, big data analytics, and machine learning models. Reviewed over 11 recent publications (2024–2026) from Google Scholar and PubMed, systematically identifying research gaps in proactive fraud detection frameworks.

### **5.2 Data Acquisition and Preprocessing**

Accessed and downloaded the CMS Healthcare Provider Fraud Detection dataset from Kaggle, comprising three relational tables — Inpatient Claims, Outpatient Claims, and Beneficiary Demographics. Performed data cleaning, handling missing values, and merging of datasets using Python (Pandas library).

### **5.3 Feature Engineering and Risk Profiling**

Developed custom provider-level behavioral features including financial velocity variables, average deductible distributions, and patient hospitalization span metrics. Built consolidated risk profiles for each healthcare provider to serve as input for machine learning models.

### **5.4 Machine Learning Model Development**

Implemented and evaluated the Random Forest Classifier for fraud prediction. Addressed class imbalance challenges and performed feature importance analysis to identify the strongest predictors of fraudulent provider behaviour.

### **5.5 Data Visualization and Reporting**

Developed multiple empirical visualizations including state-wise beneficiary distribution profiles, top procedure and diagnosis code frequency charts, high-risk physician profiles, and bivariate claim amount vs. patient age scatter plots to support research findings.

### **5.6 Academic Writing and Documentation**

Prepared structured research documentation including synopsis, chapter-wise dissertation drafts, and regular progress reports submitted to the faculty guide. Incorporated feedback from the faculty guide to improve the quality and rigor of the research.

## **6. Key Learnings from Internship**

The internship at IIHMR University under the supervision of Dr. Kumar Parimal Shrestha provided invaluable learning experiences across multiple dimensions:

### **6.1 Technical Skills**

Gained hands-on proficiency in Python programming for data science, including libraries such as Pandas, NumPy, Scikit-learn, Matplotlib, and Seaborn. Developed competency in working with large-scale relational healthcare datasets and implementing ensemble machine learning models.

### **6.2 Research Methodology**

Developed a strong understanding of quantitative research design, secondary data analysis, feature engineering, and empirical model evaluation. Learned to systematically identify research gaps through structured literature review using Boolean search strategies across academic databases.

### **6.3 Healthcare Domain Knowledge**

Deepened understanding of the health insurance ecosystem, including the mechanisms of fraudulent billing schemes such as phantom billing, upcoding, and provider-patient collusion. Developed awareness of regulatory frameworks including UGC guidelines, HIPAA, and India's DISHA regulations relevant to healthcare data security.

### **6.4 Professional and Interpersonal Skills**

Enhanced abilities in academic writing, structured documentation, and scientific presentation of research findings. Developed time management, self-directed learning, and professional communication skills through regular interactions with the faculty guide and adherence to submission deadlines.

### **6.5 Analytical and Critical Thinking**

Strengthened the ability to critically evaluate existing research, identify methodological limitations, and propose evidence-based solutions. The internship fostered a data-driven mindset essential for decision-making in healthcare management roles.

This internship has been a transformative academic experience that has equipped me with the technical, analytical, and professional skills required to contribute effectively to the field of Healthcare Analytics and Data-Driven Health Management.