#### 1. Introduction

This report presents a comprehensive analysis of 100 health insurance claims with the objective of identifying key trends, approval patterns, potential fraud indicators, and deriving actionable insights. The primary aim is to improve claim processing mechanisms by minimizing financial losses and enhancing customer satisfaction through transparent and fair claims management.

## 2. Demographic Overview

The claimants in the dataset range from 19 to 79 years of age, with an average age of approximately 50 years. A majority of the claims were submitted by male patients, constituting 58% of the total, whereas female patients accounted for 42%. It was observed that high-value claims were more common among older patients (above 60 years), indicating an increased need for medical attention with advancing age.

3. Claim Type Distribution

The claims in the dataset are categorized into three primary types:

- Hospitalization: 38%

- Pharmacy: 34%

- Outpatient: 28%

Hospitalization claims constituted the highest in terms of monetary value,

while pharmacy and outpatient claims were more frequent but comparatively

lower in cost. This categorization helps in identifying the segments that

contribute most significantly to financial risk.

4. Claim Amount Analysis

The claim amounts varied from Rs.697 to Rs.49,580, with an average claim

amount of Rs.26,015. Approximately 25% of claims were below Rs.15,520,

whereas the top 25% exceeded Rs.39,305. A clear pattern emerged showing

that higher-value claims are generally associated with hospitalization and

older claimants. This analysis is crucial for defining risk management

strategies and setting realistic approval thresholds.

## 5. Pre-Existing Conditions & Diagnosis Match

A total of 54% of claimants had pre-existing conditions; however, only 46% had matching diagnoses with the submitted documentation. Claims that included accurate diagnosis matches had significantly higher approval rates. This emphasizes the importance of precise and complete medical documentation in the approval process.

### 6. Document Completeness and Its Role

Out of the 100 claims analyzed, 52 claims were found to have incomplete documentation. These incomplete submissions were associated with substantially lower approval rates. This highlights the critical role of thorough document verification in enhancing the efficiency and fairness of the claim approval process.

7. Claim Approval Analysis

The analysis showed the following approval outcomes:

- Approved Claims: 66%

- Rejected Claims: 34%

The primary factors influencing claim approvals were the completeness of

documents and the presence of diagnosis matches. In contrast, rejections

often stemmed from incomplete documentation or high fraud risk scores.

These insights indicate that improvements in documentation practices and

fraud detection mechanisms can significantly increase approval efficiency.

8. Conclusions and Recommendations

The key findings from this analysis indicate that the claim approval process is heavily dependent on:

- Document completeness
- Fraud detection scores
- Accuracy of medical documentation

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Claim_ID	Patient_Age Gender	Claim_Amount	Claim_Type	Pre_Existing_Condition:	Diagnosis_Match	Document_Complete	Claim_Approved	Fraud_Suspected	Approval_Status	Fraud_Risk_Score	Claim_Category
C0001	56 Female	45651 O	utpatient	Yes	No	No	Yes	Yes	1	10	Very High
C0002	69 Female	22903 P	narmacy	Yes	No	No	No	No	(	5	High
C0003	46 Female	18641 P	narmacy	Yes	Yes	Yes	No	No	(	1	High
C0004	32 Female	15320 P	narmacy	No	Yes	No	Yes	No	1	. 2	High
C0005	60 Male	40842 P	narmacy	Yes	No	No	No	No	(	5	Very High
C0006	25 Female	6874 H	ospitalization	No	No	Yes	Yes	No	1	. 2	Medium
C0007	78 Male	2178 H	ospitalization	Yes	Yes	No	No	No	(	3	Low
C0008	38 Female	34327 P	narmacy	Yes	No	No	Yes	No	1	5	Very High
C0009	56 Female	16698 O	utpatient	Yes	No	Yes	No	No	(		) High
C0010	75 Male	10414 H	ospitalization	No	No	No	Yes	No	1	4	Medium
C0011	36 Female	28390 P	narmacy	Yes	Yes	Yes	Yes	No	1	1	High
C0012	40 Male	22799 H	ospitalization	Yes	Yes	Yes	No	No	(		High
C0013	28 Female	44085 H	ospitalization	No	Yes	No	Yes	No	1		Very High
C0014	28 Female	44189 O	utpatient	Yes	No	No	Yes	No	1		Very High
C0015	41 Male	43057 P		No	No	No	No	No	(		Very High
C0016	70 Female	49580 P	narmacy	No	No	No	No	No	(		Very High
C0017	53 Male	44520 O	utpatient	Yes	Yes	Yes	Yes	No	1	1 1	Very High
C0018	57 Female	3193 0	utpatient	No	No	No	Yes	Yes	1		Low
C0019	41 Male	29967 P	narmacy	Yes	No	Yes	Yes	Yes	1		High
C0020	20 Male	30223 P	narmacy	No	No	No	Yes	No	1		Very High
C0021	39 Female		utpatient	No	No	No	Yes	No			Very High
C0022	70 Female	4127 H	ospitalization	Ves	Yes	No	Yes	No			Low
C0023	19 Male	26439 H	ospitalization	No	Yes	Yes	No	No	(		High
C0024	41 Female		utpatient	No	No	No	No	No	(		Very High
C0025	61 Female	43441 H	ospitalization	No	Yes	No	No	No	(		Very High
C0026	47 Female	22334 O	utpatient	No	Yes	No	Yes	No	1		High
C0027	55 Male		ospitalization	No	No	No	Yes	No	1		High
C0028	19 Male		ospitalization	Yes	No	Yes	Yes	No	1		High
C0029	77 Male	10730 P		No	Yes	No	Yes	No	1		Medium
C0030	38 Male	16207 P		Yes	No	Yes	Yes	No	1		High
C0031	50 Male		ospitalization	No	Yes	Yes	No	No	(		High
C0032	29 Male		ospitalization	Yes	No	Yes	Yes	Yes	1		Very High
C0033	75 Male	24276 P		Yes	Yes	Yes	Yes	No	1		High
C0034	39 Male	30580 P		No	No	Yes	Yes	No	1		Very High
C0035	78 Male		narmacy	No	Yes	Yes	No	No	(		Low
C0036	61 Female		utpatient	No	Yes	No	Yes	No	1		Medium
C0037	42 Male		ospitalization	Yes	Yes	Yes	Yes	No	1		High
C0038	66 Female		narmacy	No	No	Yes	Yes	No			Medium
C0039	44 Female		ospitalization	Yes	Yes	Yes	No	No	(		Very High
C0040	76 Female	22459 O	utpatient	Yes	Yes	No	Yes	No	1	. 3	High