

## schema\_validator.py

```
1  from pymongo import MongoClient
2  from config import MONGO_URI
3  from fee_calculator import SESSION_MONTHS
4
5  client = MongoClient(MONGO_URI)
6  db = client["class_mgmt"]
7  students = db["students"]
8  fee_records = db["fee_records"]
9
10 REQUIRED_STUDENT_FIELDS = [
11     "R.No", "Student ID", "Name", "FatherName", "MotherName",
12     "DOB", "Gender", "Class", "Section", "ContactNo", "Fatherless"
13 ]
14
15 def validate_student_schema():
16     print("🔍 Validating student documents...")
17     all_students = students.find()
18     missing_fields_report = []
19     for student in all_students:
20         missing = [field for field in REQUIRED_STUDENT_FIELDS if field not
in student]
21         if missing:
22             missing_fields_report.append({
23                 "Student ID": student.get("Student ID", "Unknown"),
24                 "Missing Fields": missing
25             })
26
27     if missing_fields_report:
28         print("❗ Students with missing fields:")
29         for entry in missing_fields_report:
30             print(f"- ID {entry['Student ID']}: Missing {entry['Missing
Fields']}")
31     else:
32         print("✅ All students have complete schema.")
33
34 def validate_fee_records():
35     print("\n📄 Validating fee records...")
36     all_students = students.find()
37     issues_found = []
38
39     for student in all_students:
40         sid = student["Student ID"]
41         fee_docs = list(fee_records.find({"student_id": sid}))
```

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42         if len(fee_docs) != 12:
43             issues_found.append(f"Student ID {sid} has {len(fee_docs)} fee
records (expected 12).")
44
45         # Check month consistency
46         recorded_months = {doc["month"] for doc in fee_docs}
47         missing_months = set(SESSION_MONTHS) - recorded_months
48         if missing_months:
49             issues_found.append(f"Student ID {sid} is missing months:
{sorted(list(missing_months))}")
50
51     if issues_found:
52         print(" ! Fee record issues found:")
53         for issue in issues_found:
54             print(f"- {issue}")
55     else:
56         print("✅ All students have complete fee records for April-March.")
57
58 if __name__ == "__main__":
59     validate_student_schema()
60     validate_fee_records()
61
```