

NeoBank Digital – Credit Scoring & Eligibility Engine Module

1. Document Control

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2. Executive Summary

The Credit Scoring & Eligibility Engine Module is responsible for evaluating loan applicants and determining their eligibility in real time. It integrates external bureau data, alternative credit sources, and internal behavioral analytics to provide an accurate risk profile. The objective is to minimize default risk while expanding credit access to new customer segments.

3. Objectives

- Provide automated loan eligibility decisions within ≤ 2 minutes.
- Integrate bureau and alternative data sources for holistic scoring.
- Ensure fairness, transparency, and regulatory compliance in credit scoring.
- Reduce loan default rates by 15% within the first year of operation.

4. Scope

In-Scope

- Credit bureau integrations.
- Internal credit scoring model (machine learning + rule-based thresholds).
- Alternative data usage (utility bills, transaction history).
- Eligibility rules (income-to-loan ratio, repayment capacity).
- Real-time API for loan approval module.

- Decision explanation for compliance (reason codes).

Out-of-Scope

- Loan application capture (covered in Loan Application Module).
- Repayment monitoring (covered in Loan Repayment Module).
- Fraud detection (covered in Fraud & Risk Module).

5. Key Features

1. **Credit Bureau Integration** – fetch applicant credit history.
2. **Internal Scoring Model** – combine bureau and behavioral data.
3. **Eligibility API** – real-time eligibility decisions.
4. **Reason Codes** – explain rejections to customers and regulators.
5. **Risk Tiering** – categorize customers into high/medium/low risk.
6. **Audit Trail** – maintain logs of every scoring decision.
7. **Configurable Rules** – adjust thresholds by product type.

6. User Stories

- As a **customer**, I want to know immediately if I'm eligible for a loan so that I don't waste time.
- As a **risk officer**, I want a scoring engine that integrates multiple data sources so that I can minimize risk.
- As a **regulator**, I want transparent scoring reason codes so that the process is fair.
- As a **data scientist**, I want to monitor model performance so I can ensure accuracy.

7. Integrations

- **Credit Bureau APIs** – Experian, Equifax, TransUnion.
- **Bank Transaction Data** – internal transaction histories.
- **Alternative Data Sources** – telecom, utility, rental history.
- **Loan Application Module** – API integration for real-time decisions.

8. Authentication & Security

- Authentication: OAuth2.0 for API access.
- Data Encryption: AES-256 at rest, TLS 1.3 in transit.
- Model governance & versioning for scoring algorithms.

- Strict access controls for risk data.

9. Non-Functional Requirements (NFRs)

- **Performance:** Eligibility decision ≤ 2 minutes.
- **Availability:** 99.9% uptime for scoring services.
- **Scalability:** Support 100,000 scoring requests per day.
- **Compliance:** GDPR, Fair Lending Laws, RBI credit regulations.
- **Security:** Encrypted model inputs/outputs with auditability.

10. Risks & Mitigations

Risk	Impact	Mitigation
Model bias in scoring	Regulatory penalties	Regular bias audits, fairness metrics
Credit bureau downtime	Incomplete decisions	Multi-bureau integration & fallback priority
Data breach of sensitive info	Legal & reputation risk	Strong encryption, access logging
Incorrect risk tiering	High default rates	Continuous retraining & monitoring

11. Success Metrics

- Accuracy of Scoring Model: $\geq 90\%$ predictive accuracy.
- Average Eligibility Decision Time: ≤ 2 minutes.
- Reduction in Loan Defaults: $\geq 15\%$.
- Regulatory Compliance Incidents: Zero.

12. Dependencies

- Bureau API contracts.
- Internal transaction data availability.
- Regulatory compliance approvals.
- Data science team for model monitoring.

13. Timeline & Milestones

- **Week 1–2:** Requirements & design finalization.
- **Week 3–4:** Bureau API integrations.
- **Week 5–6:** Internal scoring model development.
- **Week 7:** Alternative data integrations.
- **Week 8:** Decision explanation & audit trail features.
- **Week 9:** Internal testing.
- **Week 10:** UAT & compliance sign-off.
- **Week 11:** Production launch.

14. Appendix

- Glossary of Terms: Risk Tiering, Reason Codes, Bureau API.
- Reference Standards: Fair Lending Guidelines, GDPR, Basel Risk Standards.