=== Model Performance Summary ===

MSE Time (s)

Random Forest 0.142576 1547.18

CatBoost 0.142904 85.33

XGBoost 0.143372 19.37

LightGBM 0.143511 44.27

HistGradientBoosting 0.143528 29.72

=== Xgboot ===

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FINAL RESULTS SUMMARY

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🏆 Best Algorithm: Squid Game Optimizer

📉 Best MSE Achieved: 0.143320

⏱️ Execution Time: 359.33 seconds

🔢 Features Selected: 19

Selected Features:

1. CreditScore

2. AnnualIncome

3. LoanDuration

4. Age

5. HomeOwnershipStatus

6. NumberOfOpenCreditLines

7. DebtToIncomeRatio

8. BankruptcyHistory

9. LoanPurpose

10. InterestRate

11. CheckingAccountBalance

12. RetirementAccountBalance

13. StudentLoanBalance

14. HealthInsuranceStatus

15. CarInsuranceStatus

16. OtherInsurancePolicies

17. MonthlyHousingCosts

18. MonthlyFoodCosts

19. MonthlyHealthcareCosts

=== CatBoot ===

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FINAL RESULTS SUMMARY (Using CatBoost)

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🏆 Best Algorithm: Genetic Algorithm

📉 Best MSE Achieved: 0.143812

⏱️ Execution Time: 594.08 seconds

🔢 Features Selected: 28

Selected Features:

1. CreditScore

2. AnnualIncome

3. Age

4. NumberOfDependents

5. EducationLevel

6. HomeOwnershipStatus

7. NumberOfCreditInquiries

8. DebtToIncomeRatio

9. BankruptcyHistory

10. LoanPurpose

11. InterestRate

12. PaymentHistory

13. SavingsAccountBalance

14. InvestmentAccountBalance

15. RetirementAccountBalance

16. TotalAssets

17. LengthOfCreditHistory

18. PersonalLoanBalance

19. HealthInsuranceStatus

20. CarInsuranceStatus

21. OtherInsurancePolicies

22. JobTenure

23. MonthlySavings

24. AnnualBonuses

25. AnnualExpenses

26. MonthlyFoodCosts

27. MonthlyHealthcareCosts

28. MonthlyEntertainmentCosts

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