Business Requirements

1. Functional Requirements:

1. Accurate Forecasting:

-Machine Learning Models: Develop and deploy machine learning models capable of accurately predicting future share prices.

- Data Sources: utilize historical price data, trading volumes, financial statements, and relevant news articles to enhance model accuracy.

- Model Evaluation: Continuously evaluate models using metrics such as mean absolute error, mean squared error, and R-squared to ensure high prediction accuracy.

- Regular Updates: Implement a process for regular model retraining and updates to incorporate the latest market data and trends.

2. Real-Time Data Acquisition:

- Integration with Data Providers:Integrate with financial data providers (e.g., stock exchanges, financial news websites) to acquire real-time market data.

- Streaming Data Processing: Ensure the system supports real-time data streaming to provide up-to-date predictions and insights.

- Low Latency: Minimize latency in data retrieval and processing to enable timely decision-making.

3. User-Friendly Interface:

- Dashboard:Develop an intuitive dashboard for users to access predictions, market trends, and other relevant financial information.

- Customization:Allow users to customize their interface based on their preferences and needs (e.g., selecting specific stocks, time intervals).

- Interactive Visualizations:Provide interactive charts and graphs to help users visualize market trends and predictions.

- User Support: Offer comprehensive training, documentation, and customer support to assist users in navigating and utilizing the system effectively.

4. Report Generation:

-Automated Reports: Implement automated report generation capabilities to provide regular updates on model performance, market trends, and prediction outcomes.

- Customizable Reports: Allow users to customize reports based on specific criteria (e.g., time periods, selected stocks, key metrics).

- Distribution: Enable easy distribution of reports through various channels (e.g., email, downloadable PDFs) to relevant stakeholders.

- Insights and Recommendations:Include actionable insights and recommendations in the reports to help users make informed decisions.

2. Non-Functional Requirements

1. Scalability:

- Ensure the system can handle increasing volumes of data as more stocks and markets are tracked.

- Design the architecture to support scalability in terms of both data processing and storage.

2. Performance:

- Optimize the model and data processing pipelines for fast, real-time predictions.

- Minimize latency in data retrieval, processing, and prediction generation.

3. Security:

- Implement robust security measures to protect sensitive financial data, including encryption, access controls, and regular security audits.

- Ensure compliance with financial data regulations and industry standards.

4. Reliability and Availability:

- Design the system for high availability, ensuring minimal downtime and quick recovery from failures.

- Implement redundancy and failover mechanisms to maintain continuous operation.

5. Maintainability:

- Ensure the system is easy to maintain and update, with clear documentation and modular architecture.

- Facilitate regular model retraining and updates to keep predictions accurate and relevant.

3. Regulatory and Compliance Requirements

1. Data Privacy:

- Ensure compliance with data privacy laws and regulations, including GDPR and other relevant standards.

- Implement measures to protect user data and provide options for users to control their data usage.

2. Auditing and Logging:

- Maintain detailed logs of data access, processing, and predictions for auditing purposes.

- Ensure the system can generate audit reports to demonstrate compliance with regulatory requirements.

3. Ethical Considerations:

- Ensure the predictive model is fair and unbiased, avoiding any discriminatory practices.

- Regularly review and audit the model for ethical compliance and address any identified issu

4. Stakeholder Requirements

1. Investors and Traders:

- Require accurate and timely predictions to inform trading decisions.

- Need actionable insights and alerts to capitalize on market opportunities.

2. Financial Analysts:

- Require detailed reports and analysis of market trends and prediction outcomes.

- Need tools to track and evaluate model performance over time.

3. IT and Data Teams:

- Require a robust, scalable, and maintainable system architecture.

- Need clear documentation and support for ongoing maintenance and updates.

4. Regulatory Bodies:

- Require assurance of compliance with financial regulations and data privacy standards.

- Need access to audit logs and compliance reports.

By meeting these business requirements, a share price prediction system can effectively support investors, traders, and financial analysts in making informed decisions, optimizing trading strategies, and ensuring compliance with regulatory standards.