CoinMarketCap Handler Tasks

Setup Tasks

Initial Configuration

- [ ] Install MindsDB CoinMarketCap handler
- [ ] Configure API key and credentials
- [ ] Set up rate limiting parameters
- [ ] Configure timeout and retry settings
- [ ] Test basic connection

Handler Creation

- [ ] Create CoinMarketCap database handler
- [ ] Configure API endpoints
- [ ] Set up authentication
- [ ] Validate handler creation
- [ ] Test handler connectivity

Table Setup

- [ ] Create listings view
- [ ] Create quotes view
- [ ] Create market data view
- [ ] Create historical data view
- [ ] Validate all views

Testing Tasks

Connection Tests

- [ ] Test handler connection
- [ ] Validate API authentication
- [ ] Test network connectivity
- [ ] Verify SSL/TLS setup
- [ ] Test connection pooling

Data Retrieval Tests

- [ ] Test cryptocurrency listings
- [ ] Test price quotes retrieval
- [ ] Test market data access
- [ ] Test historical data queries
- [ ] Validate data accuracy

Performance Tests

- [ ] Measure query response times
- [ ] Test concurrent connections

- [ ] Validate rate limiting
- [ ] Test large data queries
- [ ] Monitor memory usage

Error Handling Tests

- [ ] Test invalid API key
- [ ] Test network timeouts
- [ ] Test rate limit exceeded
- [ ] Test malformed queries
- [ ] Test service unavailable

Configuration Tasks

API Management

- [ ] Set up API key rotation
- [ ] Configure rate limiting
- [ ] Set up monitoring alerts
- [ ] Configure retry logic
- [ ] Set up error logging

Security Tasks

- [ ] Secure API key storage
- [ ] Set up access controls
- [ ] Configure SSL certificates
- [ ] Set up audit logging
- [ ] Implement data encryption

Data Validation Tasks

Data Quality

- [ ] Validate price accuracy
- [ ] Check data completeness
- [ ] Verify timestamp accuracy
- [ ] Test data freshness
- [ ] Validate market cap calculations

Schema Validation

- [ ] Verify column types
- [ ] Check data constraints
- [ ] Validate foreign keys
- [ ] Test null handling
- [ ] Verify data formats

Optimization Tasks

Performance Optimization

- [ ] Optimize query patterns
- [ ] Implement caching strategy
- [ ] Configure connection pooling
- [ ] Set up query optimization
- [ ] Monitor resource usage

Monitoring Setup

- [ ] Set up health checks
- [ ] Configure performance metrics
- [ ] Set up error tracking
- [ ] Create usage dashboards
- [ ] Set up alerting

Documentation Tasks

Technical Documentation

- [ ] Document API endpoints
- [ ] Create query examples
- [ ] Document error codes
- [ ] Create troubleshooting guide
- [ ] Document best practices

User Documentation

- [ ] Create setup guide
- [ ] Document common queries
- [ ] Create FAQ section
- [ ] Document limitations
- [ ] Create migration guide

Completion Criteria

Functional Requirements

- [ ] Handler connects successfully
- [ ] All views return data
- [ ] Rate limiting works correctly
- [ ] Error handling is robust
- [ ] Performance meets requirements

Non-Functional Requirements

- [ ] Response time < 5 seconds
- [ ] 99.9% uptime achieved
- [ ] Security requirements met
- [ ] Documentation complete

- [ ] Tests pass consistently

Validation Checklist

Pre-Production

- [ ] All tests passing
- [ ] Performance benchmarks met
- [ ] Security scan completed
- [ ] Documentation reviewed
- [ ] Monitoring configured

Production Ready

- [ ] Load testing completed
- [ ] Disaster recovery tested
- [ ] Monitoring alerts configured
- [ ] Support procedures documented
- [ ] Rollback plan prepared

Success Metrics

- **Uptime**: > 99.9%
- **Response Time**: < 5 seconds average
- **Error Rate**: < 0.1%
- **Data Accuracy**: > 99.9%
- **Test Coverage**: > 95%

Known Issues & Limitations

- Rate limiting: 333 requests per day on free tier
- Historical data limited to 1 year
- Some endpoints require paid subscription
- API key rotation required monthly
- Regional restrictions may apply

Support & Troubleshooting

Common Issues

1. **API Key Invalid**: Check key format and permissions
2. **Rate Limit Exceeded**: Implement proper throttling
3. **Connection Timeout**: Check network and firewall settings
4. **Data Stale**: Verify refresh intervals
5. **Authentication Failed**: Validate credentials

Escalation Path

1. Check logs and error messages
2. Consult troubleshooting guide

3. Contact CoinMarketCap support

4. Escalate to MindsDB team

5. Create GitHub issue if needed