

# MongoDB Trading Database Model

## Database Overview

This database model supports my capstone project with user management, trade journaling, analytics, and chart management capabilities.

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## Collection Schemas

### 1. users Collection

```
{
  _id: ObjectId("U1111"),
  username: "String",
  password: "String",
  email: "String",
  tradingProfile: {
    experienceLevel: "String", // beginner/intermediate/advanced
    preferredMarkets: ["Array"], // ["stocks", "forex", "crypto"]
    riskTolerance: "Integer" // 1-5 scale
  },
  createdAt: "Date",
  lastLogin: "Date"
}
```

### 2. trade\_journals Collection

```
{
  _id: ObjectId("TJ9999"),
  userId: ObjectId("U1111"), // References users._id
  trades: [
    {
      _id: ObjectId("trade001"),
      techniqueId: ObjectId("TECH456"), // References user_techniques._id
      symbol: "String", // e.g., "AAPL"
      direction: "String", // "long" or "short"
      entry: {
        price: "Decimal",

```

```

    time: "Date",
    screenshot: "String" // file path
  },
  exit: {
    price: "Decimal",
    time: "Date",
    reason: "String",
    screenshot: "String"
  },
  pnl: "Decimal",
  notes: "String",
  tags: ["Array"], // ["large-cap", "technical"]
  status: "String" // planned/executed/closed/canceled
}
],
createdAt: "Date",
lastUpdated: "Date"
}

```

### 3. technique\_analytics Collection

```

{
  _id: ObjectId("TA789"),
  userId: ObjectId("U1111"), // References users._id
  techniqueId: ObjectId("TECH456"), // References user_techniques._id
  stats: {
    totalTrades: "Integer",
    winningTrades: "Integer",
    losingTrades: "Integer",
    winRate: "Decimal", // 0.63 = 63%
    totalPnl: "Decimal",
    averageWin: "Decimal",
    averageLoss: "Decimal",
    winLossRatio: "Decimal",
    longestWinStreak: "Integer",
    longestLosingStreak: "Integer"
  },
  byInstrument: [
    {
      symbol: "String",
      trades: "Integer",
      winRate: "Decimal",
      totalPnl: "Decimal"
    }
  ]
}

```

```

],
timeBuckets: {
  "30d": { winRate: "Decimal", trades: "Integer" },
  "90d": { winRate: "Decimal", trades: "Integer" }
}
}

```

#### 4. instrument\_analytics Collection

```

{
  _id: ObjectId("IA456"),
  userId: ObjectId("U1111"), // References users._id
  symbol: "String", // e.g., "AAPL"
  stats: {
    totalTrades: "Integer",
    winningTrades: "Integer",
    losingTrades: "Integer",
    winRate: "Decimal",
    totalPnl: "Decimal",
    averageWin: "Decimal",
    averageLoss: "Decimal",
    winLossRatio: "Decimal"
  },
  byTechnique: [
    {
      techniqueId: ObjectId("TECH456"), // References user_techniques._id
      trades: "Integer",
      winRate: "Decimal",
      totalPnl: "Decimal"
    }
  ],
  heatmapData: [
    {
      technique: "String",
      pnl: "Decimal",
      winRate: "Decimal",
      frequency: "String" // high/medium/low
    }
  ]
}

```

#### 5. user\_techniques Collection

```

{
  _id: ObjectId("UT123"),
  userId: ObjectId("U1111"), // References users._id
  techniqueId: ObjectId("TECH456"), // Base strategy reference
  customName: "String",
  notes: "String",
  customSteps: [
    {
      order: "Integer",
      action: "String"
    }
  ],
  lastUsed: "Date"
}

```

## 6. user\_charts Collection

```

{
  _id: ObjectId("CHART888"),
  userId: ObjectId("U1111"), // References users._id
  title: "String",
  symbols: ["Array"], // ["QQQ", "NDX"]
  timeframes: ["Array"], // ["1D", "4H"]
  indicators: [
    {
      name: "String", // "EMA", "RSI"
      period: "Integer"
    }
  ],
  drawingTools: [
    {
      type: "String", // "trendline", "support", "resistance"
      points: [
        {
          x: "String", // date or time
          y: "Decimal" // price level
        }
      ]
    }
  ],
  lastUpdated: "Date"
}

```

## 7. heatmaps Collection

```
{
  _id: ObjectId("HEAT123"),
  userId: ObjectId("U1111"), // References users._id
  data: [
    {
      technique: "String",
      symbol: "String",
      pnl: "Decimal",
      winRate: "Decimal",
      frequency: "String" // high/medium/low
    }
  ]
}
```

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## Relationships

### Primary Relationships

- **users** → **trade\_journals** (1:N via userId)
- **users** → **technique\_analytics** (1:N via userId)
- **users** → **instrument\_analytics** (1:N via userId)
- **users** → **user\_techniques** (1:N via userId)
- **users** → **user\_charts** (1:N via userId)
- **users** → **heatmaps** (1:N via userId)

### Cross-References

- **user\_techniques** → **technique\_analytics** (via techniqueId)
  - **user\_techniques** → **instrument\_analytics** (via techniqueId)
  - **user\_techniques** → **trade\_journals.trades** (via techniqueId)
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