

Home Test Task Application
User Requirements
Version 1.0

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Business context

In the modern world many "rocket-science" technologies have come to the financial domain. Over the past few years one of non-traditional financial-assets based on cutting-edge technologies has drastically grown and become very popular in the society - cryptocurrencies. Being a fintech company and following the newest trends in this sphere, we have developed a coin's exchange simulation application for examining job seeker's skills and knowledge.

Each user of this application has initial amount of funds named Base Coins. In the system there is the list of other coins with ticking prices which the user can buy and/or sell. Several services commonly used for real market applications supplement this basic exchange functionality.

Application environment

Hardware

The application shall be located at a dedicated web server. The application shall be stable and no degradation shall be detected for 3 years since the initial setup to the described environment. User interface is web-based, so it shall be compatible with any hardware where a web-browser may be used for observing web-pages.

Software

The application is web-based, so it shall be compatible with any present-day web-browse

User account

Registration

Registration before using the application is required. System shall provide a registration form to a new user from Log in form.

The user is to fill in registration form fields to register (* - mandatory):

- E-mail *
- Password * (must contain 8-20 symbols including upper-case, lower-case and special symbol)
- Real name
- Phone number
- Initial Deposit * (1000, 5000 or 10000 Base Coins)

After the registration the system shall send an email with registration details information.

Logging In

The user shall be able to set *User name* (E-mail) and *Password* of a registered user into the Log in form. Log in shall be successful.

Logging Out

The user is logged out after a time of inactivity configured in *Settings*. The user shall be able to log out by themselves using a suitable control button on the application panel.

Account Closure

The user can fully close the account and remove it from the system by means of the suitable control button in the Account settings.

During the account closure operation all coins shall be exchanged to a Base Coin by the current exchange rates. A paycheck on the sum of Base coin available on the account shall be issued and sent to the user's email address along with the final report with all account operations.

User settings

The user shall be able to observe and change personal data and application settings. Application shall support both Russian and English languages and two types of color schemes - light and dark.

Personal

Personal are the user's parameters:

1. Login (non-editable)
2. Password
3. Real name
4. Address
5. Phone

Settings

Settings are the application configuration parameters:

1. Timeout (ms)
2. Application language - EN, RU
3. Color scheme - Light, Dark

Exchange

Coins

Application has BCC (Base coin) which is used as a base currency for exchange operations. List of tradable coins:

1. CC - Cookie coin
2. GLC - Good luck coin
3. PLC - Penniless coin
4. BWB - Better with beer coin
5. WOC - Wooden coin
6. MOON - In the name of the moon coin

The list of coins shall have the following features:

1. Coin names
2. Coin descriptions
3. Exchange operations Buy\Sell
4. Price tickers
5. Expandable coin rows with wallet details
6. Additional functions:
 - a. Hide coins with zero funds in wallet
 - b. Expand coin rows with non-zero funds in wallet
 - c. Exchange all coins to BCC

Prices

Each coin has a price in Base Coin. Prices follow a simulated market - ticking up or down. According to industrial standard, *tick up* price is green, *tick down* price is red.

Buy

Buy operation is possible for any coin in the list if Base Coins amount is sufficient for such operation.

Buy operation shall be accessible through a control button for each coin. The quantity of the desired coin increases by the entered value. Base Coin quantity decreases in accordance with the current price.

Sell

Sell operation is only possible if the user has coin.

Sell operation shall be accessible through a control button for each coin. The amount of coin to sell should be less than or equal to the available amount of coin. The quantity of the desired coin decreases by the entered value. Base Coin quantity increases in accordance with the current price.

Balance

Account balance

There are 3 account-wide financial metrics:

BCC Balance - the amount of Base Coin.

Open Positions - the amount of other coins in Base Coin by current exchange rates.

Total Funds - "BCC Balance" + "Open Positions".

Coin Wallets balance

Each coin wallet has 2 financial metrics:

Wallet #id - the amount of coins in this particular wallet.

Amount in base coin - the amount of coins from a particular wallet in Base Coin by current exchange rates.

Commissions

Exchange operations in the system are commissioned. The user shall pay in BCC for each exchange order. Commission for each particular trade is calculated by the following formula:

$\text{commission} = \max(2 \text{ BCC}, 0.1\% \times (\text{*order amount*} \times \text{*current price in bcc*}))$

Account statement report

Account statement report is used for reviewing the account history. The report is requested by pressing a suitable button in the application panel. The user shall set *report start* and *report end* dates.

Account data includes:

1. User details
2. Wallets balances
3. Executions history

The user shall not be able to request a report for the date earlier than the account registration date. The report loading shall be fast.

Chart

Chart feature is used for the analysis of the market and visualization of price movement with the ability to choose different representations of the graph and different time frames.

Chart shall be configurable:

1. Coins - any of the tradable coins in the system
2. Graph type - Bar, Candle, Line
3. Period - Hour, Day, Month

Notifications

The system generates notifications for any meaningful event in the system:

1. Exchange operations
2. System errors
3. Etc.

User shall be able to clean-up Notifications.