|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Requirement Traceability** | | **System Requirements** | | | | | | | | | | | | | | | |  |  |
| **BID001** | **BID002** | **BID003** | **BID004** | **BID005** | **BID006** | **BID007** | **BID008** | **BID009** | **BID010** | **BID011** | **BID012** | **BID013** | **BID014** | **BID015** | **BID016** | **BID017** | **Max PW** | **Total PW** |
| **PW** | | 2 | 3 | 5 | 4 | 4 | 1 | 3 | 2 | 4 | 2 | 1 | 3 | 3 | 5 | 5 | 5 | 3 |
| **Use Cases** | **TID001** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | x |  | 5 | 5 |
| **TID002** |  |  |  |  |  |  |  |  |  |  |  |  |  | x | x | x |  | 5 | 5 |
| **TID003** |  |  |  |  | x |  |  |  |  |  |  |  |  | x | x | x |  | 5 | 9 |
| **TID004** |  |  |  |  | x |  |  |  |  |  |  |  |  |  |  | x |  | 5 | 9 |
| **TID005** |  | x |  |  |  |  |  |  | x | x |  | x | x |  |  |  |  | 4 | 15 |
| **TID006** |  | x |  |  |  |  |  |  | x | x |  | x | x |  |  |  |  | 4 | 15 |
| **TID007** |  | x |  |  |  |  |  |  | x | x |  | x | x |  |  |  |  | 4 | 15 |
| **TID008** |  | x | x |  |  |  |  |  |  | x |  | x | x |  |  |  |  | 5 | 16 |
| **TID009** | X | x |  |  |  | x |  | x |  | x | x |  | x |  |  |  |  | 3 | 14 |
| **TID010** | X | x |  |  |  |  |  |  |  | x |  |  |  |  |  |  |  | 3 | 6 |
| **TID011** |  | x | x | x |  |  | x |  |  |  |  |  | x |  |  | x | x | 5 | 8 |
| **TID012** |  | x |  | x |  |  |  |  |  | x |  |  | x |  |  |  |  | 5 | 24 |
| **TID013** |  | x |  | x |  |  |  |  |  | x | x |  |  |  |  |  |  | 4 | 11 |
| **TID014** |  |  |  | x | x | x | x | x |  | x |  |  |  | x | x |  | x | 4 | 20 |
| **TID015** | X | x |  |  |  | x | x | x |  | x |  |  | x |  |  |  |  | 3 | 16 |
| **TID016** |  |  |  |  | x |  |  |  |  |  |  |  |  | x |  |  |  | 5 | 9 |
| **TID017** |  |  |  |  | x |  |  |  |  |  |  |  |  | x |  | x |  | 5 | 14 |
| **TID018** |  |  |  |  | x |  |  |  |  |  |  |  |  |  | x | x |  | 5 | 14 |

Traceability Matrix

|  |  |  |
| --- | --- | --- |
| **System Requirements** | | |
| Requirement ID | Requirement Description | Team Member |
| BID001 | The system should be able to compare up to a maximum of 5 stocks | Victoria O. |
| BID002 | The system should be able to update the price of a stock using a "ticker" | Victoria O. |
| BID003 | Customers should be able to sell stocks by shares or dollars | Victoria O. |
| BID004 | The system should have a comprehensive history of all bought and sold stocks for each customer. | Jeremy B. |
| BID005 | The system should have two factor authentication for securing accounts, by either using a properitary mobile application or a 3rd party like Google Authenticator. | Jeremy B. |
| BID006 | The system should have push notifications for user specified events regarding stock trades. | Jeremy B. |
| BID007 | The system will generate and display charts of a user's unrealized gain/loss | Arick M. |
| BID008 | The system will display ticker information of stocks in a watchlist selected by the user, or of large/interesting stocks | Arick M. |
| BID009 | The system will allow the user to place buy orders for any US stock | Arick M. |
| BID010 | Allow checking the value of stock over time | Tran N |
| BID011 | Show news about the current state of the market. | Tran N |
| BID012 | Establish specific rules for trade automatically. | Tran N |
| BID013 | The system will allow users to place orders during after hours | Kyron E |
| BID014 | The system will allow users to instant deposit a limited amount of money in a 24 hour period | Kyron E |
| BID015 | the system will limit the amount of money a user can withdraw in a 24 hour period | Kyron E |
| BID016 | The system allows users to manage account information | Arick M. |
| BID017 | The system allows users to manage current standing orders | Arick M. |

|  |  |  |  |
| --- | --- | --- | --- |
| **Use Cases** | | | |
| Initiator | Initiator's goal | Participants | Use case name/ID |
| Investor/Advisor | Create a new account for a new customer | Database | Create account (TID001) |
| Investor/Advisor | Add billing information to an account | Database | Add billing(TID002) |
| Investor | Login to their account | Database | Login(TID003) |
| Investor | Logout of their account | Database | Logout(TID004) |
| Investor/Advisor | Purchase asset with Limit Order | Broker | Limit Order(TID005) |
| Investor/Advisor | Purchase asset with Stop Order | Broker | Stop Order(TID006) |
| Investor/Advisor | Purchase asset at market value | Broker | Market buy(TID007) |
| Investor/Advisor | Sell asset at market value | Broker | Market sell (TID008) |
| Investor/Advisor | Browse stocks and assets on the market | Stock Market | Browse(TID009) |
| Investor/Advisor | Compare different stocks on the market | Stock Market | Compare(TID010) |
| Investor/Advisor | Cancel standing orders | Broker | Cancel(TID011) |
| Investor/Advisor | View Price trends of a stock | Stock Market | Stock Trends(TID012) |
| Investor/Advisor | View overall market trends and news | Stock Market | Market News(TID013) |
| Investor/Advisor | View assets currently held in account | Database | View Holdings(TID014) |
| Investor/Advisor | View real time price tickers for a selection of stocks | Stock Market | Real Time(TID015) |
| Investor/Advisor | Deposit funds in the account to be usable immediately | Stock Market | Instant Deposit(TID016) |
| Investor/Advisor | Deposit funds in the account to be usable in 3-5 business days | Stock Market | Deposit(TID017) |
| Investor/Advisor | Withdraw funds from the account | Stock Market | Withdraw(TID018) |

Use Case Scenarios

Jeremy B

**1.**  TID004 Logout

**Preconditions:** Investor is logged onto the system.

Flow of events for main success scenario.

-> 1. **Investor** navigates to top corner of the company webpage for a logout button

<- 2. **System** logs out out user from system, reverts to login state from TID003.

1a. **Investor** is idle for an hour.

**Investor** is automatically logged out by the **System**.

1b. **Investor** logs into a different device while another is logged in.

**System** logs out any other devices.

**2.** TID005 Limit Order

**Preconditions:** Investor is logged onto the system.

Flow of events for main success scenario.

-> 1. **Investor** browses the market through the process outlined in TID009.

-> 2. **Investor** picks an available stock to buy or sell from and chooses the option to use a limit order and if it is for the day or for up to 60 days.

<- 3. **System** saves the order and executes when the limit price is met or better.

3a. 60 days pass without execution

**System** cancels order at 4PM EST if 60 days pass without execution.

3b. The day limit order never executes before the day ends.

**System** cancels order at 4PM EST the same day as the order.

**3.**TID006 Stop Order

**Preconditions:** Investor is logged onto the system.

Flow of events for main success scenario.

-> 1. **Investor** browses the market through the process outlined in TID009.

-> 2. **Investor** picks an available stock to buy or sell from and chooses the option to use a stop order and if it is for the day or for up to 60 days.

<- 3. **System** saves the order and executes when the stock price is met, or if the stock reaches a minimum price.

3a. 60 days pass without execution

**System** cancels order at 4PM EST if 60 days pass without execution.

3b. The day stop order never executes before the day ends.

**System** cancels order at 4PM EST the same day as the order.

Kyron E

**1**.TID016 Instant Deposit

**Preconditions:** (TID001, TID002, TID003) user has added billing information after creating an account and logging in.

Flow of Events for Main Success Scenario

<-1. **System** prompts the user to start investing now with an instant deposit up to $1000.

->2. **Investor** selects an amount under $1000 to deposit.

<-3. **System** verifies that the users bank account will allow the withdrawal of the requested deposit amount.

<-4. **System** notifies the user that the instant deposit was successful and that the user may start investing.

4a. **System** notifies the user that the amount entered was more than $1000 and that the amount can be deposited as a normal deposit.

**2**.TID017 Deposit

**Preconditions:** (TID001, TID002, TID003)

Flow of Events for Main Success Scenario

->1. **Investor** selects to deposit

<-2. **System** notifies users that there is a $50,000 limit on daily deposits

<-3. **System** then prompts user to enter amount that the user wants to deposit

->4. **Investor** enters the amount that they wants to deposit

<-5. **System** verifies if the user’s bank account will allow the withdrawal of the requested deposit amount.

<-6. **System** notifies the user that the deposit was a success and that the actual transfer may take 3-5 business days.

(Alternate Scenario)

6a. **System** notifies the user that the deposit has been denied due to insufficient funds or exceeding the daily deposit amount.

6b. **System** redirects the user to the prompt that allows the user to enter the amount that the user wants to deposit (Step 5 of TID014 deposit)

**3**.TID018 Withdraw

**Preconditions:** (TID001, TID002, TID003)

->1. **Investor** selects to withdraw.

<-2. **System** prompts the user to withdraw up to the daily limit of $50,000.

->3. **Investor** enters the amount to withdraw.

<-4. **System** verifies the user has the amount available to withdraw and verifies that the amount is less than or equal to $50,000.

<-5.  **System** notifies the user that the deposit was successful and that the actual transfer may take up to 3-5 business days.

5a. **System** notifies the user that they do not have the requested withdrawal amount on standby and that sold stocks take two days to become withdrawable.

5b. System redirects the user to enter the amount to withdraw (Step 3 of TID015 Withdraw).

Arick Mounts

Use case TID001    Create account

Flow of Events for Main Success Scenario

-> 1.**Investor** navigates to company webpage and selects option to create investing account

<- 2.**System** prompts user for email address, full legal name, and new account password

-> 3.**Investor** supplies valid account information

<- 4. **System** verifies information, creates the account in the database, and sends a verification email to the provided email address

-> 5.**Investor** verifies their email address, and completes the process

Flow of events for extensions(Alternate Scenarios):

3a. **Investor** enters invalid email address

<- 1. **System** (a)Detects error (b) notifies actor and prompts for corrected email address

 -> 2. **Investor** supplies valid email

3. Scenario continues from step 3 above

Use case TID003   Login

Flow of events for main success scenario

-> 1. **Investor** navigates company webpage to account login page

<- 2. **System** prompts user for valid login information

-> 3. **Investor** provides valid login information

<- 4. **System** (a)verifies login information and (b) gives investor access to their account

Flow of events for extensions(Alternate Scenarios):

->3a. Investor provides incorrect login information

  <- 1.**System** (a) detects error (b) marks failed attempt to login to the account, and notifies actor and prompts retry

1a. **System** (a) detects that the number of failed attempts exceeds the allowed

number (b) locks the account until recovered by a trusted user.

-> 2. **Investor** supplies valid login information

3. Same as step 4 above

Use Case TID002    Add Billing

**Preconditions:** Investor is logged onto the system and shown a add billing information hyperlink

Flow of Events for Main Success Scenario:

-> 1. **Investor** clicks the hyperlink “Add Billing Information”

<- 2. **System** prompts user to enter valid bank routing information

-> 3. **Investor** enters valid bank routing information

<-4. **System** (a)verifies bank routing information and (b)adds it as billing information for the actors account.

Flow of events for extensions(Alternate Scenarios):

3a. **Investor** enters invalid bank routing information

<- 1. **System** (a)detects that provided banking information is invalid and (b) notifies actor of the error

->2. **Investor** supplies valid bank routing information

3. Continues at step 4 above.

Tran N - TID007: checking stock

-> Users login to an account on the web or app.

<- System shows the main page.

-> Users can click on or search the stock they want to look at.

<- System will display the current value and the chart during the recent week.

<- System also displays an option so the user could pick the time they want in months, years,...

Tran N - TID008: Show news on the market

-> Users could click on a tab to check the news on the market.

<- System will display the top news or hits.

-> Users can click on or search about a topic they want to look at.

<- System will display news about how things are going.

Tran N - TID009: Set trade auto on device

-> Users will need to successfully login into the account.

<- System will check and display the main page.

-> Users will click on the stock and select the buy option.

-> Users then set up the amount how many they want to buy and how much they are willing to pay.

<- The system will confirm and save all info of user input and process buy when all the condition is met.