General

ID: GE01	**Date:** 17.07.2018
Name: One login per team	
Story: As a game master, I want to be able to create one single login per participating team such that the participants are supported in their group work.	
Acceptance Criteria: ✓ Game masters can create team logins by creating a game ✓ Teams can log in with the credentials they received from the game master	
Priority: Must have	

ID: GE02	**Date:** 13.08.2018
Name: Maintaining multiple logins with a single account	
Story: As a team of students, we would like to be able to sign in on multiple devices such that we can perform research and preparations independently.	
Acceptance Criteria: ✓ Multiple login sessions can be maintained with a single team account ✓ Teams need to be appropriately informed about the possibility of inconsistencies due to multiple actions taken from different devices	
Priority: Must have	

ID: GE03	**Date:** 13.08.2018
Name: Game master account creation	
Story: As the responsible person for the seminar I need to create different game master accounts such that multiple persons could overtake the lead of the game.	
Acceptance Criteria: ✓ A game master account can create new game master accounts ✓ Multiple game master accounts may be created	
Priority: Must have	

ID: GE04	**Date:** 16.10.2018
Name: Provisional hand-in of allocations	
Story: As a team of students, we would like to be able to save our current state	

provisionally, such that other members of the team can also see the current state on their device.

Acceptance Criteria:
- ✓ SAA, TAA, Depot Realization and business decisions can be imperatively saved to the database without needing to end the period
- ✓ After saving the state, other members of the team with the same active login can reload their application and see the new state

Priority: Must have

ID: GE05	**Date:** 31.10.2018

Name: Asset administration

Story: As an administrative member of the DBF I need to have an overview about all assets being selectable within the game and need to be able to synchronize them to a definition.

Acceptance Criteria:
- ✓ Overview about all assets which are currently used in the games
- ✓ A central definition of all assets being used in an outsourced file (e.g. csv)
- ✓ Synchronizing API with a central definition

Priority: Should have

ID: GE06	**Date:** 31.10.2018

Name: Asset type and currency administration

Story: As an administrative member of the DBF I need to edit information about the asset types and the currencies.

Acceptance Criteria:
- ✓ Editable asset type information (e.g. information text, ordering)
- ✓ Editable currency information (e.g. ordering, symbol)

Priority: Must have

ID: GE07	**Date:** 31.10.2018

Name: Customer types administration

Story: As an administrative member of the DBF all customer types have to be editable, such that ideal saa and ranges in both dimension can be adjusted. All other information about customer types, such as information text has to be editable too.

Acceptance Criteria:
- ✓ Ideal SAA for each customer type is editable
- ✓ Ranges (min. and max.) for both currency and asset type are editable within one visualization

Priority: Must have

Game Sessions

ID: SE01	**Date:** 13.08.2018
Name: Game creation	
Story: As a game master, I want to be able to create game sessions (multiple games) such that I can set up an execution of the game in advance.	
Acceptance Criteria: ✓ Game masters can initialize new game sessions ✓ Teams can be created based on a number of teams and being assigned to any initialized game session	
Priority: Must have	

ID: SE02	**Date:** 13.08.2018
Name: Customer profiles	
Story: As a game master, I would like to define and parametrize different customer profiles that students have to work with.	
Acceptance Criteria: ✓ The game master can define any number of customer profiles that students will need to account for ✓ There are existing some predefined customer types ✓ Each customer profile can be parameterized with regards to their acceptance ranges (upper and lower limits per customer profile) ✓ Customer profiles can be enabled only after a certain number of rounds such that it is possible to start games with only one single type of customer (may be parametrized in advance)	
Priority: Must have	

ID: SE03	**Date:** 13.08.2018
Name: Game execution	
Story: As a game master, I need to be able to explicitly start and continue sessions such that access is controlled and only available during the execution of the game.	
Acceptance Criteria: ✓ Initialized games can be started by the game master that created them (and only by them)	
Priority: Must have	

ID: SE04	**Date:** 13.08.2018

Name: Game parametrization

Story: As a game master, I want to be able to parametrize games such that I can introduce a reasonable variance between different games and showcase different economic environments.

Acceptance Criteria:
- ✓ Games can be parameterized with respect to the execution of the game
- ✓ Games can be parameterized with respect to the simulation of stock market data (e.g., length and number of periods to simulate)
- ❏ Games can be parameterized with respect to the internal market model (i.e., its effective curves and indices)
- ✓ Games can be set to alternatively use periods of historical data instead of using the stock market simulation (as long as data available)

Priority: Must have

ID: SE05	**Date:** 13.08.2018

Name: Pausing and continuing sessions

Story: As a game master, I would like to be able to pause and continue sessions in-between rounds, such that I can account for any unexpected events in a fair manner.

Acceptance Criteria:
- ✓ Running sessions can be paused by the game master after a round is completed if all teams have submitted their decisions such that the students have some time pressure in the game
- ✓ Paused sessions can be continued by the game master
- ✓ After continuing a paused session, the next round can be started immediately

Priority: Must have

ID: SE06	**Date:** 07.11.2018

Name: Parametrized Sessions - Scenarios

Story: As a game master, I would like to choose from different predefined templates that represent different critical points in financial history

Acceptance Criteria:
- ❏ Choose from multiple scenario templates within the creation of the game

Priority: Nice to have

ID: SE07	**Date:** 07.11.2018
Name: Add new customers	
Story: As a game master, I would like to have the possibility to add new customers for each Team after a period. This should be voluntary for each period.	
Acceptance Criteria: ❏ Game master can add a different number of new customers for each team ❏ Game master can add a total summation of customers for every team	
Priority: Nice to have	

Asset Allocation

ID: AP01	**Date:** 13.08.2018
Name: Defining a Strategic Asset Allocation (SAA)	
Story: As a team of participants, we need to be able to define an initial strategic asset allocation for the game based on the different types of customers that are available to us.	
Acceptance Criteria: ✓ An SAA can be defined before any of the game rounds are played (period 0) ✓ Once defined, the SAA provides a fixed point of reference for further rounds ✓ The SAA can be extended to new customer profiles if any are added later on	
Priority: Must have	

ID: AP02	**Date:** 13.08.2018
Name: Defining a Tactical Asset Allocation (TAA)	
Story: As a team of participants, we need to be able to define our tactical asset allocation at the beginning of each round, so that we can adjust our long-term strategic plans.	
Acceptance Criteria: ✓ A new TAA can be specified for each round of the game and if the SAA is defined within boundaries for all dimensions ✓ While deciding on a TAA, the team is kept informed about their SAA and any ranges or game constraints they might not fulfill with their current allocation (e.g. max. 10% deviation from SAA)	
Priority: Must have	

ID: AP03	**Date:** 13.08.2018
Name: Portfolio realization	
Story: As a team of participants, we need to be able to allocate our funds to specific assets and markets, as we want to achieve the portfolio state we defined in our SAA and TAA.	
Acceptance Criteria: ✓ Teams are able to distribute their funds to different asset categories based on their TAA decisions ✓ Teams can choose from different markets and currencies ✓ When investing in equity, teams can choose from different sectors of markets or shares from single firms (depending on data) ✓ Teams are being appropriately informed about any constraints and ranges that	

need to be followed, as well as their self-defined SAA and TAA constraints ❏ The maximum deviation of a share should be defined when creating the game by the game master (e.g. max. 10% deviation per share in next round)
Priority: Must have

ID: AP04	**Date:** 13.08.2018

Name: Hedging foreign currencies
Story: As a team of participants, we would like to be able to hedge our investments into foreign currencies such that we are not exposed to currency risks.
Acceptance Criteria: ❏ Investments in other currencies can be optionally hedged when realizing a depot ❏ Hedging incurs a reasonable cost
Priority: Nice to have

ID: AP05	**Date:** 07.11.2018

Name: Define two phases for the game
Story: As UI designer of the game we would like to define two phases of the game, whereas the first phase defines the initial SAA. In the second phase, the teams can decide on their TAA, their depot realization and other business administration decisions.
Acceptance Criteria: ✓ Phase 1 enables the opportunity to define the initial SAA for each customer type ✓ In phase 2 the teams can decide on TAA, depot realization or other business administrative decisions
Priority: Must have

Business Administration

ID: BP01	**Date:** 13.08.2018
Name: Forecasting	
Story: As a team of participants, we would like to be able to generate forecasting reports based on our own estimates, such that we can evaluate our planned decisions without using additional tools (i.e., Excel).	
Acceptance Criteria: ❏ Teams can provide estimates for future parameters (e.g., customer counts) ❏ Based on their estimates and their input numbers, teams can generate a forecasting report that will show them some metrics about their decisions	
Priority: Nice to have	

ID: BP02	**Date:** 13.08.2018
Name: Account balance	
Story: As a team of participants, we need to be able to see the balance of our accounts (i.e., assets under management), such that we can decide on how much money to spend in different expense categories.	
Acceptance Criteria: ✓ The necessary account balances are transparently visible to teams ✓ Balance sheet displaying result from previous period	
Priority: Must have	

ID: BP03	**Date:** 13.08.2018
Name: Defining fees and conditions	
Story: As a team of participants, we need to be able to define the fees and conditions we offer to our customers, such that we can optimize our profits.	
Acceptance Criteria: ✓ Fees and conditions can be defined for each customer type	
Priority: Must have	

ID: BP04	**Date:** 13.08.2018
Name: Marketing, HR, and Logistics	

Story: As developers of the simulation, we need to ensure that teams can distribute their money to different expense categories, such that we can appropriately simulate business-related expenses (like marketing, HR, and logistic).

Acceptance Criteria:
- ❏ Teams can define their spend on marketing-related categories:
    - Marketing expenses for all different customer types
- ❏ Teams can define their spend on HR-related categories:
    - Employment and suspensions of personal
    - Salary of employees (for each employee)
    - Bonus
    - Education days for employees per year
- ❏ Teams can define their spend on logistics-related categories:
    - Investments in IT

Priority: Must have

ID: BP05	**Date:** 13.08.2018

Name: Fluctuation

Story: As a developer, we need to ensure that teams must account for fluctuation in their HR expenses, as we want to model a realistic business environment.

Acceptance Criteria:
- ✓ The market model includes fluctuation coefficients
- ✓ Fluctuation is based on several factors:
    - Satisfaction of the employees
    - Workload of the employees
    - Salary / Bonus

Priority: Must have

Evaluation / Simulation

ID: EV01	**Date:** 13.08.2018

Name: Team performance metrics

Story: As a game master, I need to be able to assess the performance of teams on several levels, including separate metrics and aggregate measures.

Acceptance Criteria:
- ✓ After a completed round of play, different metrics are calculated for each team
- ✓ Some metrics build on a predefined effective curve and result in an "index"
- ✓ Other metrics assess the performance of teams with regards to their portfolios
- ✓ An overall measure aggregates the different metrics and allows a ranking of teams

Priority: Must have

ID: EV02	**Date:** 13.08.2018

Name: Customer satisfaction index

Story: As developers of the game, we want to build a customer satisfaction index that, based on several key input numbers, calculates the satisfaction of all different customer types for each team.

Acceptance Criteria:
- ✓ The customer satisfaction index is specific to each type of customer
- ✓ The customer satisfaction index is calculated based on multiple factors, such as
    - Performance of the portfolios of the respective customer type
    - Track record
    - Risk-adjusted Performance (Sharpe-Ratio, Information-Ratio, …)
    - Management fees
    - Availability of bank employees for consulting (HR)
    - Matching SAA to customer profile
    - Matching actual allocation to SAA

Priority: Must have

Reporting

ID: RE01	Date: 13.08.2018
Name: Reports for presentation	
Story: As a game master, I want to be able to present an automatically generated comparison (graphs and reports) of individual team performances, such that I can explain some of the typical mistakes and decisions that could have been made throughout the seminar or the lecture.	

Acceptance Criteria:
❏ After completion of any round, game masters can display a comparison report
❏ The comparison report includes a sensible means of visualization:
    - Graphs with a ranking of all teams regarding different measures
        - Netto-performance per customer type
        - Netto-performance cumulative per customer type over all periods
        - Tracking error per customer type
        - Customer satisfaction index per customer type
        - Customer count per customer type
        - Assets under management
        - Net-new money
        - Total earnings
        - Total expenses
        - Gain / Loss
        - Cost / Income ratio
        - All in conditions
        - Depotgebührensatz
        - Marketing-expenses
        - Infrastructure (IT-index)
        - Education-index
        - Human Resources - current count of employees
        - Temporary employees
        - Customer advisory services
        - Employee Satisfaction
        - Service quality index
        - Total index
        - Total index cumulative
    - Benchmark using ideal SAA predefined by game master	

Priority: Must have	

ID: RE02	Date: 13.08.2018
Name: After-period reports for individual teams	
Story: As a team of participants, we want to be able to access our past benchmarks and	

performance reports, such that we can decide about future actions in an informed way.

Acceptance Criteria:
   ✓ Teams can display their past reports at any time during the game
   ✓ No information is leaked about the future of the game

Priority: Must have

ID: RE03	**Date:** 13.08.2018
Name: Economic outlook	
Story: As a game master, I want to provide the participating teams with an automatically generated economic outlook (including forecasts) that I can customize with some sensible parameters, such that the students can take more informed decisions for the next period.	

Acceptance Criteria:
   ✓ The system generates an economic outlook according to a predefined template
   ✓ Key numbers are taken from the parameters that have been defined for the simulation of the next period as well as from some randomization parameter	

Priority: Must have	

ID: RE04	**Date:** 13.08.2018
Name: View of the CIO	
Story: As a game master, I would like to have the opportunity to provide a custom assessment and directions in my own wording that is provided to the students as the view of their bank's CIO (based on the economic outlook).	

Acceptance Criteria:
   ✓ Game masters can provide custom plain text that is shown to the students under the premise of being from their own CIO
   ✓ The CIO assessment can include directions and guidelines as well as interpretations of the economic outlook
   ✓ Voluntary, different roles of the writer could be played, such as some newspaper institutions	

Priority: Should have	

ID: RE05	**Date:** 13.08.2018
Name: Visualization of historical stock prices	
Story: As a team of participants, we would like to get a historical overview of the stocks in our portfolio, such that we can make reasonable decisions about future investments.	

Acceptance Criteria:
- ✓ Teams can access reports regarding the historical development of their stocks
- ✓ Stock prices are being displayed within a time series of all periods

Priority: Should have

ID: RE06	**Date:** 13.07.2018
Name: Performance attribution	
Story: As a team of participants, we need to have a comprehensive report about the performance attribution of our assets, such that we can decide about further investments.	
Acceptance Criteria: ✓ After each period, teams can access reports with their full performance attribution over past periods	
Priority: Must have	

Development

ID: DE01	**Date:** 12.07.2018
Name: Infrastructure	
Story: As a developer, I need to build my application on an extendable and scalable infrastructure, such that it will be easily maintainable in the future.	
Acceptance Criteria: ✓ The infrastructure is easily extendable by additional services (Docker) ✓ Multiple services can be included in the system	
Priority: Must have	

ID: DE02	**Date:** 13.08.2018
Name: Continuous integration and deployment	
Story: As a developer, I want to have an environment that is continuously integrated and deployed, such that I can always rely on having current feedback and fast failures.	
Acceptance Criteria: ✓ On merges into the master branch, the application is continuously deployed to a staging environment, where it can be tested ✓ On tagging of releases, the application is deployed to the production environment ✓ The CI pipeline includes a full test suite for the API of the application	
Priority: Must have	

ID: DE03	**Date:** 13.08.2018
Name: Code versioning and maintenance	
Story: As a developer, I need to have access to reliable repositories for the application code, such that I can easily collaborate with others on the project and new developers could understand the code.	
Acceptance Criteria: ✓ The application services are stored in separate, modular repositories ✓ The repositories are managed by submitting merge requests that contain at least a short (but complete) description of the changes ✓ The application backend contains a full integration test suite as well as independent unit tests for each service ✓ New developers understand the architecture of modular repositories by creating understandable readme files	

Priority: Must have

ID: DE04	**Date:** 13.08.2018
Name: Local game execution	
Story: As a game master, I need to be able to easily run the application on my local device, such that it can still be used even in case of network and/or other failures.	
Acceptance Criteria: ✓ The application can be started on any local device with sufficient performance ✓ Backup datasets can be previously downloaded such that it is not necessary to load the entire stock market database onto the local device ❏ The application can be started by using simple scripts without extensive IT affinity	
Priority: Should have	