**Exercise 2: Requirements specification (Lastenheft)**

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**User Interfaces:**

**Overview**

* The user should be able to see the latest status of the election
* The user should also be able to navigate to the voting view and all election views from the home page

**Voting view**

* In this view the user can specify his ‘Erststimme’ and ‘Zweitstimme’ at the same time for his ‘Wahlkreis’
* There is also a possibility to vote invalid
* In order to be able to vote the user has to specify himself by entering his identifier and his date of birth
* Afterwards he will be notified whether his vote was submitted successful.

**Election view**

* The election view offers seven different analyses for the elections of 2009 and 2013
* The analyses are:
  + Q1: The distribution of seats per party in the ‘Bundestag’
  + Q2: A list of all members in the ‘Bundestag’
  + Q3: For each ‘Wahlkreis’ the voter participation, the winner candidate and the number of ‘Erststimmen’ and ‘Zweitstimmen’ for each party in 2009 and 2013
  + Q4: A list with all ‘Überhangsmandate’ in this election
  + Q5: A list with all winner parties per ‘Wahlkreis’
  + Q6: The top ten of the tightest winners per party
  + Q7: The same analysis as in Q3, but with not aggregated data
* In each analysis the user can select the year of the election he wants to see
* The shown data can be a result of previously aggregated data

**Functional requirements:**

**Voting**

* Every citizen eligible to vote has to be able to submit his ‘Erststimme’ and ‘Zweitstimme’ exactly once
* For every user the system has to check if there is already a vote from his identifier and eventually decline it.
* The user should be able to submit an invalid vote

**Analysis of the current election**

* The preliminary result of the current election should be visualized in the analyses, which were described earlier
* It is allowed to aggregate the votes for each analysis with the exception of the last one

**Results of former elections**

* The elections of 2009 and 2013 are the former elections, which have to be accessible
* It has to be possible to display the results of former elections as reference data with the previously described analyses

**Non-functional requirements:**

**Performance**

* The application has to withstand the load of votes from all elective citizens, which are about 60 million votes
* This means that the loading times during the process of the election should not exceed 20 seconds.
* The loading time of the analyses should not exceed 20 seconds in order to provide information quickly

**Updates**

* The application has to update the results of the election quickly
* This means that the temporary result should be computed every 30 minutes
* The application should be able to process all votes until 8 hours after the election has ended
* The occurrence of errors is not allowed while computing the results

**Usability**

* The application has to have a high usability due to the use by every possible elector in Germany
* The application has to offer a clear user interface, a good ease of learning and clear and informative error and warning messages.

**Multi-User mode**

* The application has to be able to handle multi-user mode due to the use by every possible elector in Germany
* The different users are not allowed to be interfered by one another

**Acceptance criteria:**

**Reliability**

* The application has to perform the required tasks in the above-mentioned timeframe and without making mistakes
* The results, which are computed by the application, have to be accurate

**Loading time**

* The loading time of the application should not exceed 20 seconds
* A single vote should be submitted within 5 seconds

**Voting**

* The casting of a vote has to be saved and is not allowed to be lost under any circumstances
* The vote has to be stored without a connection to the elector, who submitted it

**Recovery**

* The application has to contain a recovery possibility in the case of failure.