Design Document

1. Functional Requirements
   1. User
      1. User should be able to register with a first and last name, email address, password, and phone number.
      2. User should be able to login using email and password.
      3. User should be able to see a list of parkings in the city.
      4. User should be able to see a list of available slots for each parking.
      5. User should be able to see the price of a parking slot.
      6. User should be able to book a parking slot with a given car license number starting from a given hour and lasting specified number of hours.
      7. User should be able to pay immediately with srtore credits or a credit/debit card.
      8. User should be able to pay on arrival.
      9. User should be able to pay within a week.
      10. User should be able to cancel a booking 1 hour before the scheduled time.
      11. User should have site balance with which to pay for bookings.
      12. User should be able to fill up their balance.
      13. User should get 1BGN in store credits after every 10th completed booking.
   2. Parking
      1. Parking should have number of available slots.
      2. Parking should have a list of cars parked on it at any given time.
      3. Parking should have a worker.
      4. Parking should have a list of current and future bookings.
   3. Booking
      1. Booking should have information about the user, car number, parking, duration (date from-to) and pay status.
      2. Booking should be cancelable until 1 hour before it starts.
      3. When a booking is cancelled, its price should be returned to the user in the form of store credits.
      4. After every 10th booking, gift user 1BGN in store credits.
      5. Booking should use semaphores to avoid collisions.
      6. Booking should have a unique license plate.
      7. Booking should have a status (pending, ongoing, finished, cancelled).
      8. Statuses should be color-coded (light green, green, red, gray).
   4. Worker
      1. Worker should be assigned to one or multiple parkings.
      2. Worker should see current bookings for their assigned parkings.
      3. Worker should be able to cancel bookings on their assigned parkings.
      4. Workers should be able to create bookings on their assigned parkings.
   5. Website
      1. Website should have pages for:
         1. Index (Booking)
         2. Map
         3. Profile
         4. Contact Information
      2. Website should visualize on all pages:
         1. Login button if user is not logged in.
         2. Username with credits if user is logged in.
         3. A language button to switch between Bulgarian and English.
      3. Website should display a success message after booking.
2. Non-Functional Requirements
   1. Website
      1. The website should be visually appealing.
      2. The website should be responsive.
   2. Security
      1. The user’s password should be encrypted.
   3. The user’s password should be complex (8+ characters including a lowercase, uppercase and symbol).
   4. The system should not allow for SQL injection.
   5. The system should not allow for XSS.
   6. Code
      1. Application should use async methods to be scalable.
      2. Application should be well documented. Each method should have at least one XML comment explaining what the method does and if applicable input parameters and output.
      3. Application should follow the SOLID principles.
      4. Application should have unit tests for most methods.