3.2 Non-Functional Requirements

3.2.1 Performance/Response time requirement

There are no standards for response time, therefore Golden Years should response within 300-500ms (Stack Overflow, 2017). Ideal page response/ loading time would be 200-300ms but 500 is still acceptable for the purpose of the project

3.2.2 Availability requirement

Application run time would be 24h, also booking system would run 24h. As application presents users with both- events information and booking system, it should be available throughout bank holidays and any other holidays.

Golden Years should be available to access from any device, connected to the internet with wire or via wi-fi.

* + 1. Recovery requirement

Recovery time after a downtime, shouldn’t be longer than 24 hours. Maximum accepted offline time - RTO (recovery time objectives) shouldn’t pass 48h. RPO (recovery point objective) ideal time shouldn’t pass 8h, as this would be the maximum accepted time when data can be lost from Golden Years (Cloud Google, 2017).

Backup for inserted transaction data should be every 5 minutes since the payment information is sensitive and will also rely on payment systems such as bank or paypal.

Recovery and availability requirement are connected in terms of creating back up server and creating back up data, to ensure fluent run of the server in the case of major disaster such as system down, power down etc.

  Backup frequencies – how often is the transaction data,   config data, code backed-up?

* + 1. Robustness requirement

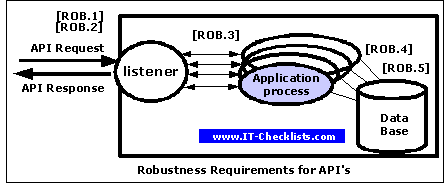
Invalid API requests should be rejected by the listener.

Listener should resist unexpected flood of requests (made either by an attack or simple errors).

Listener or database sessions shouldn’t be able to create amount of processes exceeding or reaching maximum session limit. It should limit them instead.

Application should terminate and provide error message whether an error occurred (i.e. lack of connection to database) or application is not available (i.e. due to chosen payment method issues – bank application maintenance).

Database should be protected from reaching session limit.



* + 1. Security requirement

Security should be incorporated into application developing process. Good authentication process (possibly tied to user ID and/or IP), encrypting and backing data and databases, access protection for data and databases, right handling of the session etc.

Pass , encryption, timeout etc.

* + 1. Reliability requirement

Reliability requirements are as follow:

1. Time between application failures should not exceed 1 per month.
2. Components failure should not occur more than 1 per year.

Maintenance inducted errors should not exceed 3 per year

* + 1. Maintainability requirement

Before its launch, the application will go through a testing process to ensure that all major errors have been eliminated, whether they would be design, logic, or code.

After the initial launch, the support will be handled by both the Support Team and the Development Team for a period of 3 weeks, to allow for a fast response and repair of any core issues. After that period the Development Team will hand over the support queries to the Support Team, and move to other projects or developing new features.

* + 1. **Portability requirement - would change for Usability req.??**
    2. **Extendibility requirement- or keep portability and change extendibility for usability?**
    3. Reusability requirement

As no similar projects have been developed by the team, there are no component that can be reused in the development of the application. However, the use and modification of pre-existing web application components templates is considered.

* + 1. Resource utilization requirement

Application should be a package not bigger than ?? This exclude space needed for the databases used by the application. CPU and RAM usage should be low.

performance - Is there some industry standard for unacceptable webapp response time? - Stack Overflow. 2017. performance - Is there some industry standard for unacceptable webapp response time? - Stack Overflow. [ONLINE] Available at: <https://stackoverflow.com/questions/184814/is-there-some-industry-standard-for-unacceptable-webapp-response-time>. [Accessed 03 October 2017].

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Google Cloud Platform. 2017. How to Design a Disaster Recovery Plan  |  Solutions  |  Google Cloud Platform. [ONLINE] Available at: <https://cloud.google.com/solutions/designing-a-disaster-recovery-plan>. [Accessed 04 October 2017]