**Requirements Exercise Submission Scenario (brief):**

**“A local college has decided to start an online distance learning programme at the start of the next academic year. They want an online computerised system in place to handle the administration of the programme. Prospective students must be able to enrol for the programme online where the system will store their name, address, telephone number and email address. The system will automatically give every student a unique student number which will be emailed to the student.”**

**Define a set of Functional requirements**

**Define a set of Non-functional requirements**

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**Functional Requirements:**

* + **Student Enrolment:** The system must allow prospective students to submit their personal details (name, address, telephone number, and email address) through an online form.
  + The system must validate the provided data to ensure it is correctly formatted (e.g., proper email address format, phone number format, etc.).
  + **Unique Student Number Generation:** Upon successful enrolment, the system must automatically generate a unique student number for each student.
  + The system must ensure that each student number is unique and not duplicated in the database.
  + **Email Confirmation:** The system must send a confirmation email to the student upon successful registration.
  + The email should include the student’s unique student number and any other relevant program details.
  + **Database Storage:** The system must store the student’s personal details (name, address, telephone number, email address) and the unique student number in a secure database.
  + The system must be able to retrieve and update student information when needed.
  + **Student Information Access:** The system must allow authorized personnel (administrators or support staff) to access, view, and update student records, including personal details and student numbers.
  + **Security and Privacy:** The system must protect students’ personal information (name, address, telephone number, and email) from unauthorized access, ensuring compliance with data protection regulations (e.g., GDPR).
  + The system should allow for password-based authentication for users accessing sensitive information.
  + **Error Handling:** The system must provide appropriate error messages if any required field is missing or if the data entered is in an incorrect format.
  + The system should notify users if the enrolments is unsuccessful due to system errors.

**Non-Functional Requirements:**

* + **Performance:** The system should handle up to a specified number of concurrent users without significant degradation in response time (e.g., handling 1000 users at the same time).
  + The system should complete the enrolments process (including email generation) within a specified time frame, such as within 5 seconds of form submission.
  + **Scalability:** The system must be scalable to accommodate future growth in the number of students, with the capability to increase storage capacity and system performance without major redesign.
  + **Reliability:** The system must be reliable, ensuring high availability (e.g., 99.9% uptime), with minimal downtime during maintenance periods.
  + The system should provide backup mechanisms for student data to prevent data loss in case of hardware or software failure.
  + **Usability:** The enrolments interface must be user-friendly and accessible, providing clear instructions and easy-to-understand error messages.
  + The system should be responsive and work across different devices, including desktops, tablets, and smartphones.
  + **Security:**The system should use secure protocols (e.g., HTTPS) for all data transactions to protect student data during transmission.
  + Passwords and other sensitive data should be encrypted both at rest (in the database) and in transit (during transmission).
  + **Compliance:**The system should comply with relevant laws and regulations (e.g., GDPR, FERPA) to ensure that students' personal information is handled correctly and securely.
  + **Maintainability:**The system should be easy to maintain and update, with a modular design that allows for future enhancements without affecting existing functionality.
  + **Backup and Recovery:**The system should implement regular automated backups to ensure that student data can be restored in case of data corruption or loss.
  + The recovery process should be clearly defined and tested to minimize system downtime in the event of failure.