Requirements

Business Case:

A hire company owns a range of heavy machines, such as diggers, cranes, fork-lift trucks. Periodically the company buys new machines or sends old machines to the scrap yard. When a new machine arrives a quick inspection is undertaken by the company's garage staff to ensure that it is safe to hire. Customers who wish to hire a machine may book them. New customers must register with the company before they can make a booking. Note that a deposit is required at the time of booking, with the balance paid when a customer arrives to hire a machine. A customer who returns a machine late must pay a fee for the extra days. When a machine is returned, it is sent to the garage for a quick inspection while the customer settles any outstanding fees. After each return, the machine serviced and if necessary repaired. Any machines that cannot be economically repaired are scrapped.

The company maintains a list of customers who have hired or booked their machines. Customers who have seriously damaged a machine or returned it excessively late on a previous hire are 'blacklisted' and any attempts they make to book a machine are rejected. Customers can book a machine as long as there is one available for the period that they are interested in. If a machine is only available for part of the required period of hire, then the customer is offered the shorter hire period. If the process is completed successfully, then the booking it is recorded within the company's list of future hires.

The company would like a software based system that assists in managing their *heavy machine hire* business as described above.

EXERCISE: Write down the functional and non-functional requirements for the system.

1.1 Procedure

Take the existing business case above and extract a set of functional and non-functional requirements. These requirements must be expressed as a set of declarative "shall" statements, as described on an example below.

You might need to ask some questions to the lecturer/tutor to find out additional information about the system that is not included in the existing business case.

The list of **functional requirements** shall be divided into sections that group related requirements into cohesive sets. These sections might include "User Interface", "Products", "Payment", "Orders" etc.

The list of **non-functional requirements** shall be divided into sections that group related requirements into cohesive sets. Here is a list of commonly used sections:

• Capacity
• Availability
• Performance
• Compliance to Standards
• Security

Each requirement shall be given a unique ID number for traceability.

Each requirement shall also be assigned a priority **M**, **S**, **C** or **W** according to the criteria listed in Table1:

Table 1:

Must Have	Requirements that are fundamental to the system (mandatory).
Should Have	Important requirements that may be omitted.
Could Have	Requirements that are truly optional.
Want to Have	Requirements that can wait for later releases of the system.

EXAMPLE: Here is an example of some functional requirements for an e-commerce platform system name ECP for a fictitious company called "Clear View Training Limited". You can use these as a guideline and template for yours.

Functional Requirements:

ID	Details	Type	Priority
R1	The ECP shall display a list of all products offered by Clear View Training Limited.	• Products • Functional	MustHave
R2	The ECP shall organise the list of products by product category.	• Products • Functional	MustHave
R3	The ECP shall display detailed product descriptions consisting of name, photograph, price and description on demand.	• Products • Functional	MustHave
R4	The ECP shall display the number of items currently in the shopping basket on each page of the catalog.	• Products • Functional	Could-Have

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Non-Functional Requirements:

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ID	Details	Type	Priority
R27	The ECP shall support 100,000 transactions per day.	• Capacity • NonFunctional	Should-Have
R28	The ECP shall support a peak transaction rate of 10 transactions per second.	• Capacity • NonFunctional	Should-Have
R29	The ECP shall support 10,000 concurrent sessions.	• Capacity • NonFunctional	MustHave
R30	The ECP shall be available 24 hours per day, 360 days per year.	• Availability • NonFunctional	MustHave
R31	The ECP shall store sales transaction data.	• Availability • NonFunctional	MustHave

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R33	The ECP shall log in a customer within 5 seconds.	• Performance • NonFunctional	Should-Have
R34	The ECP shall use a browser as its user interface.	• ComplianceTo-Standards • NonFunctional	MustHave

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R38	The ECP shall run on the same system and software as the existing Clear View Training web site.	• ComplianceTo-Standards • NonFunctional	MustHave
R39	The ECP shall authenticate all users of the system who are not customers.	• Security • NonFunctional	MustHave

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