Università degli Studi di Napoli Federico II

Dipartimento di Ingegneria Elettrica e delle Tecnologie dell'Informazione

Classe delle Lauree Magistrali in Ingegneria Elettronica, Classe n. LM-29

Corso di Laurea Magistrale in Ingegneria Elettronica

Thesis

Title according to the official assignment

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Revisioni

Data	Versione	Autore	Descrizione
23-03-2020	0.1	Turco Mario	Prima versione del documento
24-03-2020	0.2	Turco Mario	Aggiunte tabelle di Cockburn degli usecase

Parte I

Requisiti Software

Capitolo 1

Modello funzionale

This chapter contains useful information for the preparation and the presentation of the master degree thesis for students of Electronic Engineering (M61), at the University of Study of Naples Federico II.

The final test for the Master Degree course in Electronic Engineering consists in the preparation and discussion of a thesis, written with the help of a supervisor (eventually with one or two co-supervisors). This work is the final result of the student career and it testifies his/her ability in exploring in deep the topics encountered during the degree course.

1.1 Modellazione dei casi d'uso

The supervisor is one of the professors that the candidate encountered during the degree course. Usually, the student finds its supervisor through informal talks, once provided that the professor is available and the student is interested in the professor's topics of interest. The degree course, on its website `www.ingegneria-elettronica.unina.it`, has defined a page with a non-esaustive list of available theses topics, in order to facilitate the information exchange between students and professors.

In case the thesis is developed after an intra-moenia internship, among one of the laboratories of the departement, the tutor that has already followed the student during the internship becomes the supervisor.

The supervisor defines the thesis topic. As already mentioned, the supervisor can be helped by one (or two maximum) co-supervisor. Supervisor and co-supervisor must guide and assist the student during the thesis developement and also provide him all the needed methodological and practical instruments. During the thesis are usually foreseen periodical meetings of

the candidate with the supervisor, during which the ongoing work and the obtained results are discussed, also to define the future steps of the work.

1.2 Tabelle di Cockburn

Di seguito si riportano, divise per attori, le tabelle di Cockburn relative agli Use Case Diagram.

1.2.1 Amministratore

Tabella 1.1: L'amministratore effettua il login alla software di gestione della piattaforma

Use Case #3	Effettua Login
Goal in Context	L'amministratore effettua il login
Preconditions	L'amministratore non ha effettuto lo use case "Effettua Login".
Success End Conditions	Il login dell'amministratore va a buon fine.
Failed End Conditions	I dati di login sono errati.
Primary Actor	Amministratore
Trigger	L'amministratore preme il pulsante "Login" nella schermata LoginForm visibile all'avvio del software.

Main Scenario		
Step#	Amministratore	Sistema
1	Compila correttamente i textField Username e Password	
2	Preme il pulsante "Login" dalla schermata LoginForm	
3		Mostra schermata HomePage

Tabella 1.2: Effettua Login - Estensione 1

Extension 1: l'amministatore inserisce dati errati		
Step#	Amministratore	Sistema
1 a	Non complia o compila erroneamente i textField Username e Password	
2 a	Preme il pulsante Login	
3 a		Mostra CredenzialiErrateDialog
4 a	Preme il tasto Ok	
5 a		Mostra LoginForm e termina caso d'uso

Tabella 1.3: L'amministratore valuta una recensione

Use Case #2	Valuta Recensione
Goal in Context	L'amministratore valuta una recensione.
Preconditions	L'amministratore ha effettuto lo use case "Effettua Login".
Success End Conditions	L'amministratore valuta una recensione. Il sistema tiene traccia di tale operazione.
Failed End Conditions	L'amministatore preme annulla. L'amministrazione valuta una recensione che è già stata valutata.
Primary Actor	Amministratore
Trigger	L'amministratore preme il pulsante "Recensioni" nella Homepage.

Main Scenario		
Step#	Amministratore	Sistema
1	Preme il pulsante "Recensioni" nella schermata principale	
2		Mostra GestioneRecensioni
3	Clicca sul radio button accanto ad una recensione e preme il pulsante "Conferma"	
4		Mostra ValutaRecensione
5	Clicca sul pulsante Approva	
6		Mostra RecensioneApprovataDialog e termina lo use case

Tabella 1.4: Valuta una recensione - Estensione 1

Extension 1: l'amministatore rifiuta una recensione		
Step#	Amministratore	Sistema
5 a	Preme il pulsante "Rifiuta".	
6 a		Mostra RecensioneEliminataDialog.

Tabella 1.5: Valuta una recensione - Estensione 2

Extension 2: l'amministatore preme annulla		
Step#	Amministratore	Sistema
3/5 b	Preme il pulsante "Annulla".	
4/6 b		Ritorna alla schermata principale e termina il caso d'uso.

Tabella 1.6: Valuta una recensione - Estensione 3

Extension 3: la recensione è già stata valutata		
Step#	Amministratore	Sistema
6 c		Mostra Fallimento Dialog
7 c	Preme Ok	
8 c		Ritorna alla schermata principale e termina il caso d'uso.

Nota 1 Dato che il sistema può essere gestito da più amministratori è possibile che due di questi aprano contemporaneamente la schermata di valutazione della stessa Recensione. In questo caso andrà a buon fine soltato la valutazione dell'amministatore che per primo la rifiuterà o confermerà. L'altro amministratore vedrà la schermata di errore come descritto nella estensione 3.

1.2.2 Utente non autenticato

Tabella 1.7: Effettua Login - Main Scenario

Use Case #1	Utente effettua Login
Goal in Context	L'utente non loggato effettua il login
Preconditions	-
Success End Conditions	Il login dell'utente va a buon fine.
Failed End Conditions	I dati di login sono errati oppure il server non è raggiungibile.
Primary Actor	Utente non loggato
Trigger	L'utente preme il pulsante 'Login' nel Navigation Drawer laterale dalla schermata 'HomePage utente non loggato'.

Main Scenario		
Step#	Utente	Sistema
1	Compila correttamente i textField Username e Password	
2	Preme il pulsante "Login" dalla schermata LoginForm	
3		Mostra schermata HomePage

Tabella 1.8: Effettua Login - Estensione 1

Extension 1: l'utente inserisce dati errati		
Step#	Utente	Sistema
1 a	Compila erroneamente i textField Username e Password	
2 a	Preme il pulsante Login	
3 a		Mostra schermata Login Dati Errati Dialog e termina caso d'uso

Tabella 1.9: Effettua Login - Estensione 2

Extension 2: l'utente non compila tutti i campi		
Step#	Utente	Sistema
1 b	Non compila o compila solo un tra i textField Username e Password	
2 b	Preme il pulsante Login	
3 b		Mostra schermata Login campi vuoti Dialog e termina caso d'uso

Tabella 1.10: Effettua Login - Estensione 3

Extension 3: il server risulta non raggiungibile		
Step#	Utente	Sistema
1 c	Compila correttamente tutti i campi	
2 c	Preme il tasto "Login"	
3 c		Mostra schermata "Login server irraggiungibile dialog" e termina caso d'uso

Tabella 1.11: L'utente non loggato effettua la registazione

Use Case #2	L'utente non loggato si registra alla piattaforma
Goal in Context	L'utente non loggato effettua la registrazione
Preconditions	-
Success End Conditions	La registrazione dell'utente va a buon fine.
Failed End Conditions	Il server non è raggiungibile o l'utente immette dati non validi.
Primary Actor	Utente non loggato
Trigger	L'utente preme il pulsante 'Registrati' nel Navigation Drawer laterale dalla schermata 'HomePage utente non loggato'.

Main Scenario		
Step#	Utente	Sistema
1	Compila correttamente tutti i textField ed il date picker	
2	Preme il pulsante "Fine" dalla schermata Registrazione	
3		Mostra schermata "Registrazione success dialog" e termina il caso d'uso

Tabella 1.12: Effettua registrazione - Estensione 1

Extension 1: l'utente inserisce dati di un utente già registrato		
Step#	Utente	Sistema
1 a	Compila i textField inserendo i dati di un account già registrato	
2 a	Preme il pulsante "Fine"	
3 a		Mostra schermata "Registrazione utente esistente fail dialog" e termina il caso d'uso

Tabella 1.13: Effettura registrazione - Estensione 2

Extension 2: l'utente non compila tutti i campi o li compila in modo errato		
Step#	Utente	Sistema
1 b	Non compila o compila erroneamente i textfiel ed il datepicker	
2 b	Preme il pulsante "Fine"	
3 b		Mostra schermata "Campi non compilato o errati dialog" e termina caso d'uso

Tabella 1.14: Effettura registrazione - Estensione 3

Extension 3: il server risulta non raggiungibile		
Step#	Utente	Sistema
1 c	Compila correttamente tutti i campi della registrazione	
2 c	Preme il tasto "Fine"	
3 c		Mostra schermata "Registrazione server irraggiungibile" e termina caso d'uso

Tabella 1.15: L'utente non loggato visulizza una struttura

Use Case #3	L'utente non loggato visulizza una struttura
Goal in Context	L'utente non loggato visulizza una struttura
Preconditions	L'Utente ha effettuato una ricerca e si trova nella schermata "Lista Strutture"
Success End Conditions	L'utente visualizza i dettagli di una struttura
Failed End Conditions	Il server non è raggiungibile
Primary Actor	Utente non loggato
Trigger	

Main Scenario		
Step#	Utente	Sistema
1	L'utente clicca la Card di una struttura dalla schermata "Lista Strutture"'.	
2		Mostra la schermata "Pagina Struttura utente non loggato" e termina caso d'uso

Tabella 1.16: Visualizza struttura - Estensione 1

Extension 1: il server non è raggiungibile		
Step#	Utente	Sistema
2 a		Mostra schermata "Connessione assente" e termina caso d'uso

1.2.3 Utente autenticato

1.3 Mockup

The redaction of the thesis has to be carried on by the candidate indipendentely. A dissertation type thesis has the structure of a scientific article where it is required to derive, from the international literature, the most recent developments on the topic of interest, it is required to synthsize them, present them in an omogenous way, and finally compare the different approaches highlighting pros and cons of each of them. A sperimental type thesis has the structure of a scientific report, it faces a specific problem, typically within a more wide project of interest forthe supervisor, proposing a solution that is innovative if compared to the state of the art. A sperimental thesis also includes a validation of the proposed solution, made by means of experimental measuraments and/or numerical simulations.

1.4 Glossario

During the thesis discussion, the candidate has at his/her disposal **12 minutes** for the final presentation. The 12 minutes limit is imperative and the committee chairman will take care of the observance of this limit. Thus, te candidate must pay attention in synthesizing in a proper way the done work.

For the final presentation, the candidate has to use a *PowerPoint presentation*. For the time limit, the presentation must include a limited number of slides (more than 15 are not suggested!) and focus the attention on the main aspects of the thesis:

- the faced problem
- the state of the art
- the adopted methodologies
- the obtained results
- other...

highlighting, if it is the case, the personal contribution to the innovation. All the details are not essential and digressions are to avoid.

It is important that the presentaion is accurately organized and proved, and that the student expose its work in a clear way to the committee. At the end of the presentation, the committee could also ask clarifications or curiosities to the candidate.

Capitolo 2

Modello di Dominio

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2.1 Classi, oggetti e relazioni di analisi

The supervisor is one of the professors that the candidate encountered during the degree course. Usually, the student finds its supervisor through informal talks, once provided that the professor is available and the student is interested in the professor's topics of interest. The degree course, on its website `www.ingegneria-elettronica.unina.it`, has defined a page with a non-esaustive list of available theses topics, in order to facilitate the information exchange between students and professors.

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the candidate with the supervisor, during which the ongoing work and the obtained results are discussed, also to define the future steps of the work.

2.2 Diagrammi di sequenza di analisi

Some theses can require part of the work to be done in a company. The degree course in Electronic Engineering promotes this kind of thesis, usually carried on as the culmination of an extra-moenia internship; in order to facilitate theses in a company, on the degree course website is also present a list of available intership available among companies in the electronic field.

For theses in a company, the supervisor from the University is necessarly complemented by a co-supervisor from the company.

The topic of the thesis is to identify accordingly to both the supervisor from the University and from the company, and also according to the goals of the degree course training. The co-supervisor from the company, in addition to the duties mentioned before, must also follow the activities of the studient during the stay in the company, giving him/her the needed assistance. The company can ask to the student and the University supervisor to declare that some of the information and the material concerning the work is not to publish during the working period.

For the theses in company too, during the activities, are generally foreseen meetings between the candidate, the supervisor from the Univeristy and the co-supervisor from the company, during which the results and future steps are discussed.

2.3 Diagrammi di stato di attività

The redaction of the thesis has to be carried on by the candidate indipendentely. A dissertation type thesis has the structure of a scientific article where it is required to derive, from the international literature, the most recent developments on the topic of interest, it is required to synthsize them, present them in an omogenous way, and finally compare the different approaches highlighting pros and cons of each of them. A sperimental type thesis has the structure of a scientific report, it faces a specific problem, typically within a more wide project of interest forthe supervisor, proposing a solution that is innovative if compared to the state of the art. A sperimental thesis also includes a validation of the proposed solution, made by means of experimental measuraments and/or numerical simulations.

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Parte II

Design del sistema

Capitolo 3

Desgin

This chapter demonstrates a few examples of mathematical text typesetting.

3.1 Analisi dell'architettura

A number in the mathematical mode with decimal point: $\pi \doteq 3.141\,592\,653\,589$.
Test on a 5% level, 95% confidence interval.
We have $\operatorname{var}(X) = \mathsf{E}\, X^2 - \big(\mathsf{E}\, X\big)^2$.

3.2 Diagramma delle classi di design

3.3 CRC Cards

3.4 Diagramma di stato di design

3.5 Diagramma di sequenza di design

Parte III

Testing del sistema

Capitolo 4

Testing

The inclusion of tables and figures in a scientific publication follows certain common and certain specific rules. Tables and figures are not included inside the text but placed either on dedicated pages or floated at the top or the bottom of a text page. LaTeX handles floating figures and tables automatically. Every table and figure must be numbered and accompanied with a legend. The legend should describe the contents of the table of figure with enough detail so that the reader can understand them without studying the text of the publication. Each table and figure should be refrenced by its number in the text. The text should summarize the most important conclusions that can be drawn from the table of figure. The text should be easy to follow and understand even without seeingf the figures and tables (and on the contrary, the figures and tables should be easy to understand even without reading the text). Figures and tables should be referenced indirectly in the sentences: instead of *"Table* **??** *shows that men are on average* 9.9 *kg heavier than women"* we write *"Men are on average* $9,9$ *kg heavier than women (see Table* **??***).*

4.1 Test Plan per il System Testing

4.2 Codice jUnit per unit testing

Conclusions

The conclusion of the thesis has to sum up the main considerations and results of the whole work, eventually addressing future steps to continue the work on the discussed topic.