Ingeniería del Software y Práctica Profesional

Lecture notes

Roadmap

Co-ordinates

Context

Goals

Methodology

Evaluation

Roadmap

Co-ordinates
Context
Goals
Methodology
Evaluation

Lecturers

Cristina Cabanillas
cristinacabanillas@us.es

Carlos Müller
cmuller@us.es

Pablo Fernández
pablofm@us.es

Pablo Trinidad
ptrinidad@us.es

Schedule

Turn 1 (Spanish)	Turn 2 (Spanish)
Friday *10:40-12:30* Cristina Cabanillas Carlos Müller	**Friday** *15:30-17:20* Carlos Müller Pablo Trinidad
Friday *12:40-14:30* Cristina Cabanillas Pablo Fernández	**Friday** *17:40-19:30* Carlos Müller Pablo Trinidad

Lecturing room – Turn 1

Lecturing room – Turn 2

Room H1.10

Syllabus

Co-ordinates

Context

Goals

Methodology

Evaluation

UNIVERSIDAD D SEVILLA

Degree: Software Engineering

What's Software Engineering?

It's the application of a **systematic**, **disciplined**, **quantifiable** approach to the **design**, **development**, **operation**, and **maintenance** of software, and the study of these approaches

"Our" Software Engineering

Progressive Web App

**Progressive
Responsive
Faster** (after initial loading)
**App-like interactions
Safe**

**Fresh
Re-engageable
Connectivity independent**

**Linkable
Discoverable**

Roadmap

Co-ordinates

Context

Goals

Methodology

Evaluation

Our goals in SE&PP

Our students must learn to **develop progressive web apps** in a **professional entrepreneurial context**

What's a professional context?

Projects developed by **many people**, who have an **organisational model**, a **management model**, and a **work programme**, and who have to **address conflicts**

What's an entrepreneurial context?

Creating the future through entrepreneurship®

Young people with good ideas to devise
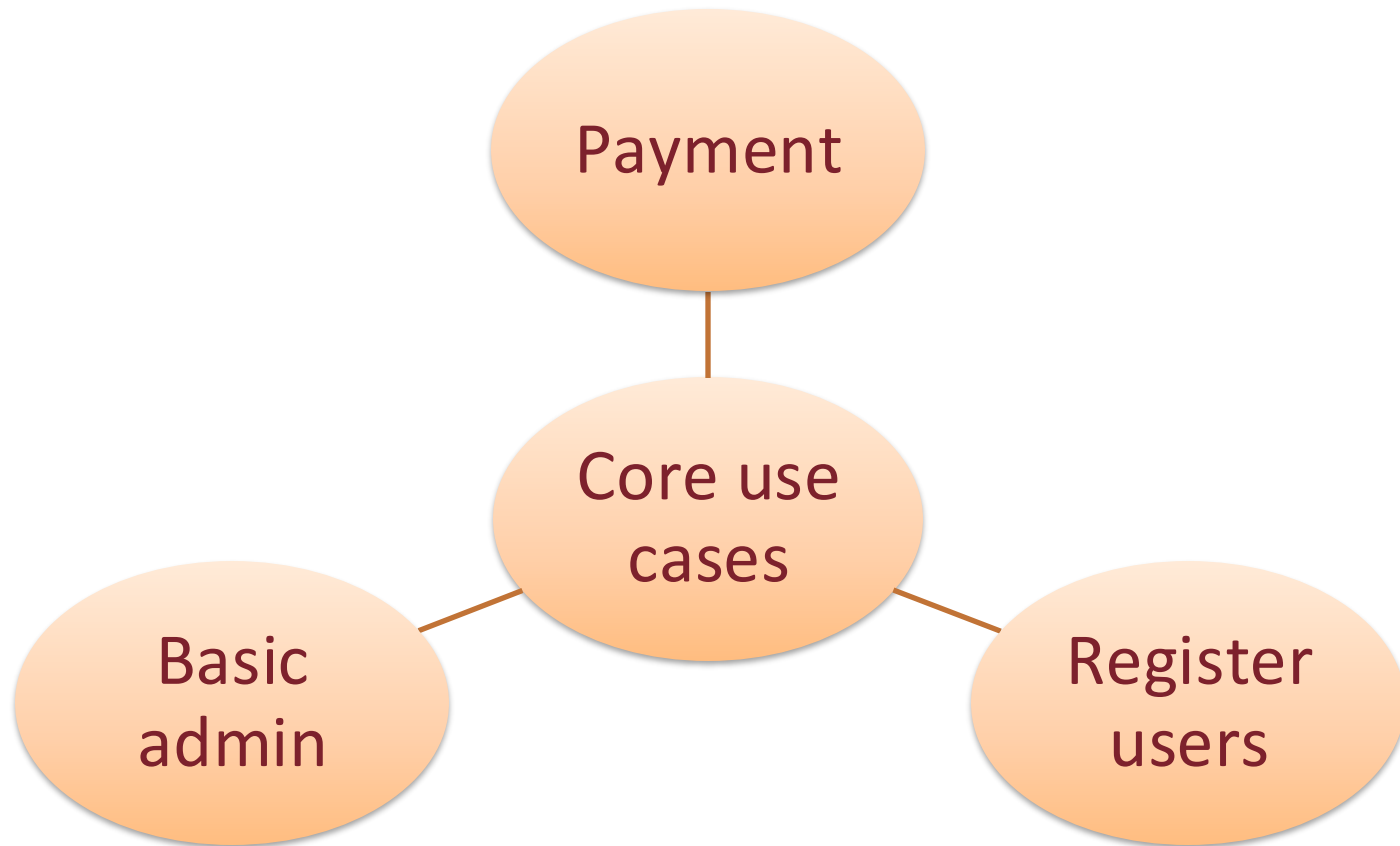an **MVP** and smart enough to transform it
into a **profitable business**

That's a good question!

Wait dude!
What's an MVP?

An MVP's a Minimum Viable Product

Payment

Core use cases

Basic admin

Register users

UNIVERSIDAD Ð SEVILLA

Project Idea?

Your own project!

Project Idea?

Free to develop your idea.

You define core use cases (rationally,

considering competitors, business value, etc).

Project value and innovation

Matchmaking projects

Service projects

Matchmaking

Matchmaking
Innovation

New Market

- -

Improved Market

Matchmaking AND Innovation

Matchmaking
Innovation

Service AND User monetisation

User Monetisation:
- **Raw data**
- **Processed data**
- **Ads**

Service
Innovation

User monetisation
Innovation

Client != user

- -

Client = user

Service AND Innovation

Service
Innovation

That's a good question!

General competences

G01: Ability to **conceive from scratch, document, organise, plan, develop and deploy software engineering projects**.

G02: Ability to **supervise activities** of software engineering projects.

Specific competences

E26: Ability to **assess a customer's needs** and specify his or her **requirements**; ability to **reconcile conflicting goals** by searching for choices taking into account constraints related to budget, time, the existence of other systems, and organisational constraints.

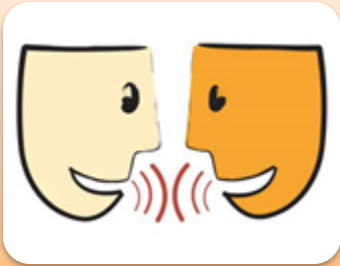E29: Ability to **identify, evaluate, and manage potential risks** during the development of a project.

E30: Ability to **design appropriate solutions** in one or more application domains using methods of Software Engineering that integrate **ethical, social, legal, and economic issues**.

Instrumental competences

Basic professional knowledge

Oral and written communication in your native language

Knowledge of a second language (English)

Inter-personal competences

Ability to provide constructive feedback (including self-assessment)

Ability to work in a team

Inter-personal skills

UNIVERSIDAD Ð SEVILLA

Systemic competences

Ability to **apply** your knowledge to practice

Research abilities (in an industrial sense)

Ability to **self-learn**

Ability to **get adapted** to new situations

Ability to **produce** new ideas (creativity)

Concern for **quality**

Roadmap

Co-ordinates

Context

Goals

Methodology

Evaluation

UNIVERSIDAD Ð SEVILLA

What do we expect from you?

Interested in working as **developers** with an active and strong sense of **ethics** and proper behaviour in **formal settings** (Don't need to be an entrepreneur, but it would be great)

Methodology (I)

We guide you

Methodology (II)

You work

a lot (10h per week)

Methodology (III)

You learn
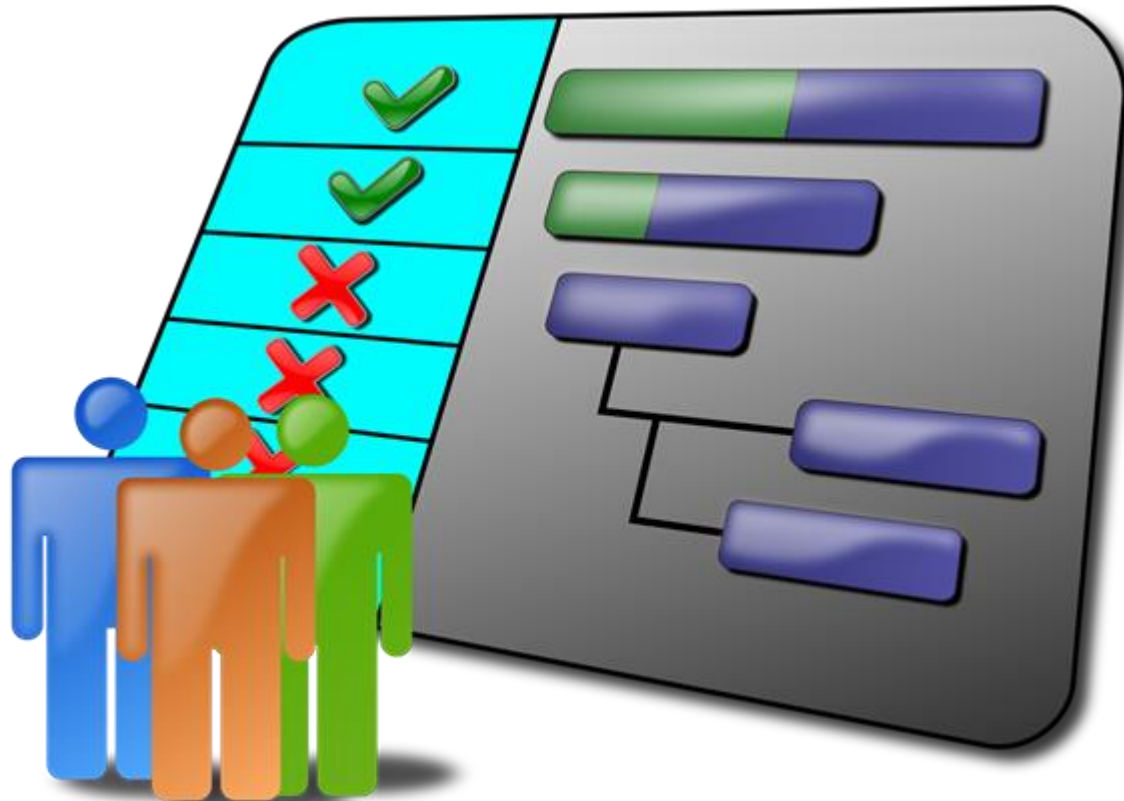
a lot

Methodology (IV)
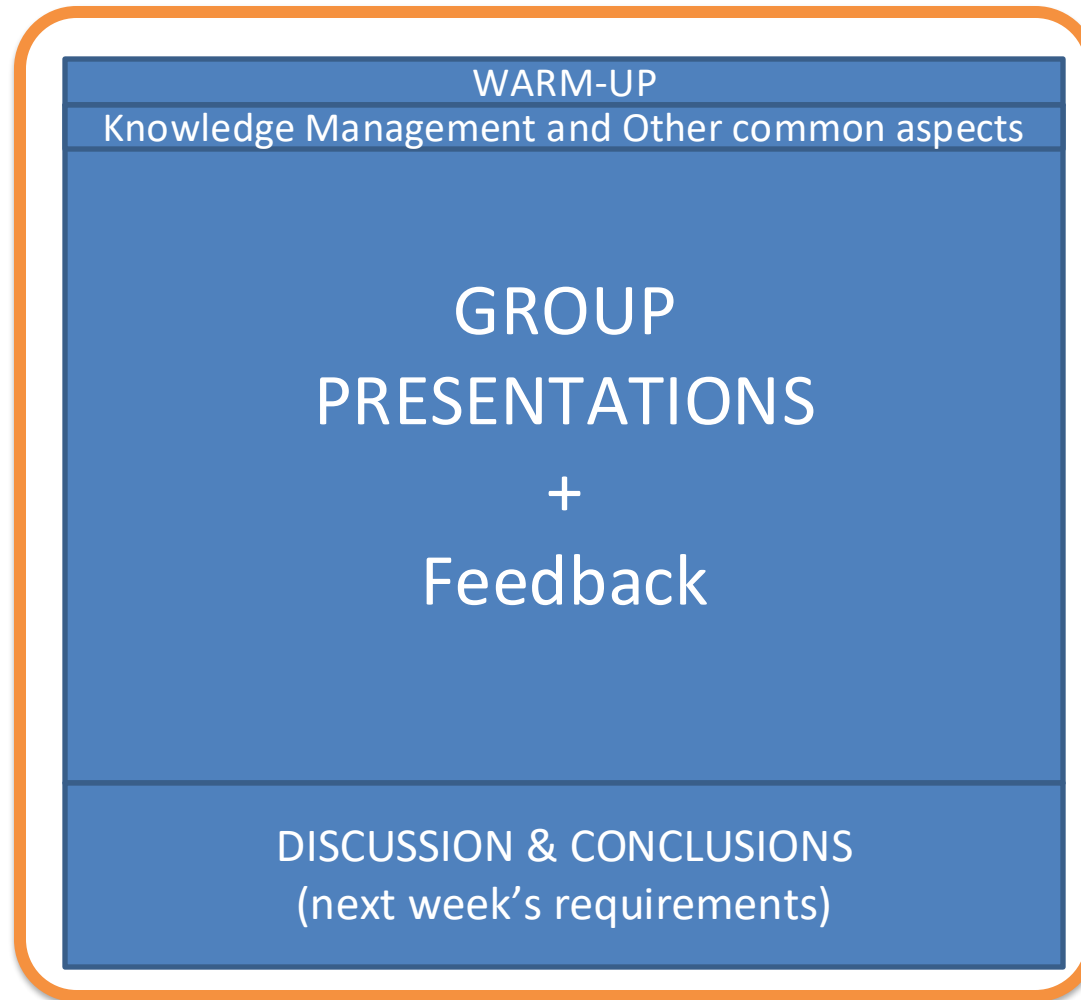
Someone else evaluates you

Methodology (V)

You cheat → drop out.

The work programme

Class structure (3h40m): Feedback

WARM-UP Knowledge Management and Other common aspects	<=10m
GROUP PRESENTATIONS + Feedback	18m + ~15m per Group (12:30-12:40 17:20-17:40)
DISCUSSION & CONCLUSIONS (next week's requirements)	~17m

Class structure (3h40m): Evaluation

WARM-UP	<=5m
GROUPS PRESENTATIONS + Failure Conditions & Feedback	16m + 13m per Group
TEST	18m (☕ 12:30-12:40 17:20-17:40)
GROUP PRESENTATIONS	
DISCUSSION & CONCLUSIONS (next week's requirements)	~23m

5 MIN

1 MIN

UNIVERSIDAD Ð SEVILLA
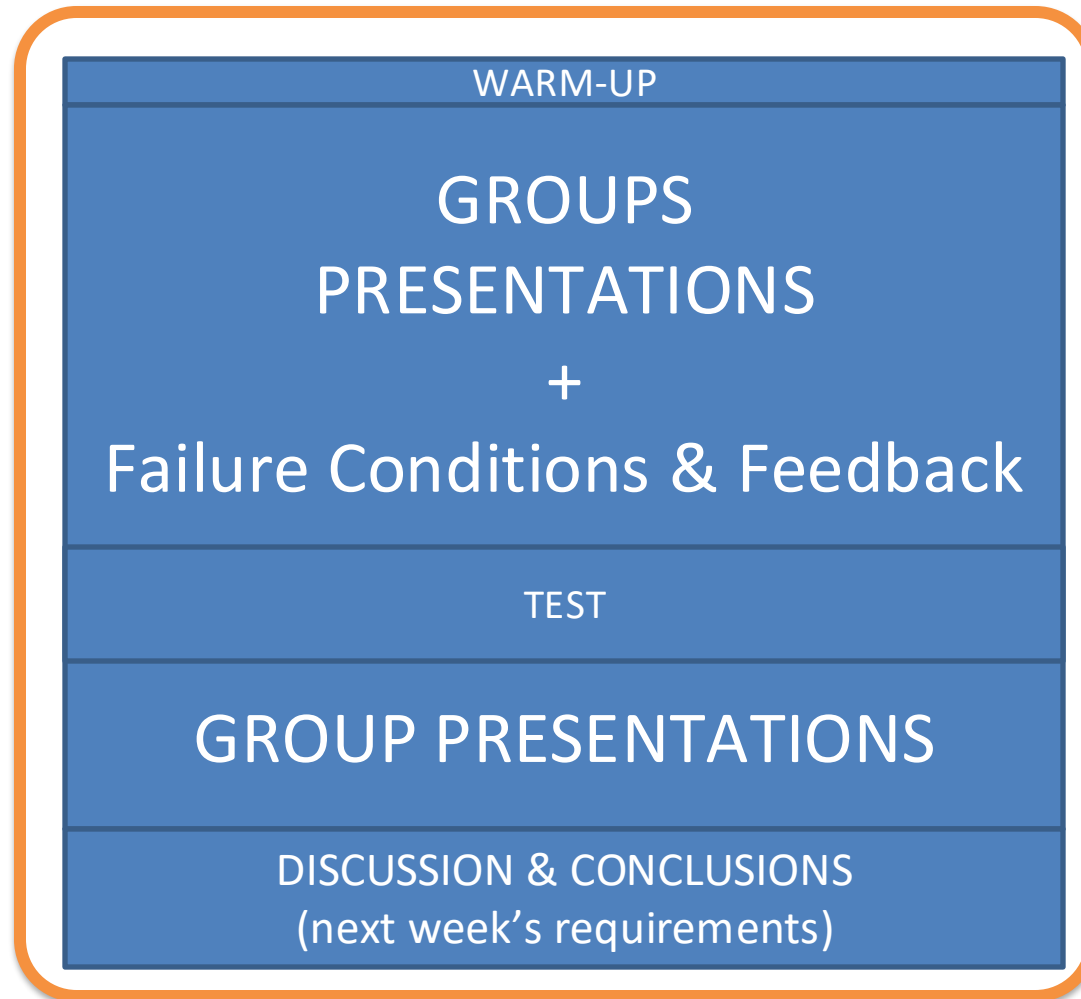
Week #1

Warming up

- Paper airplanes
- Introduction to SE&PP
- Theory (Groups and Project Management)
- Sketching your project
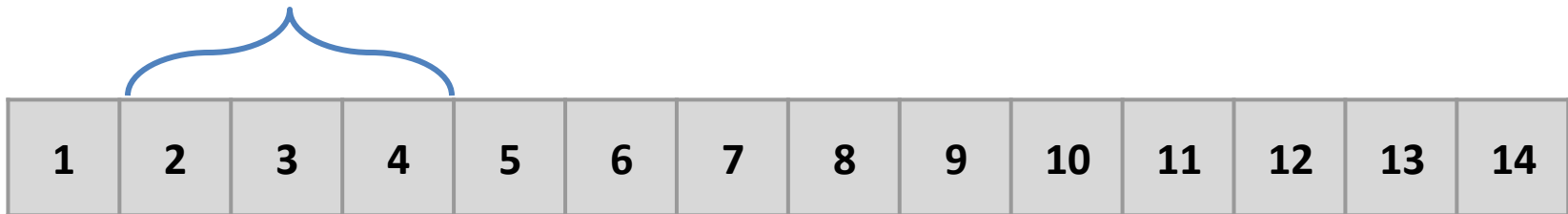- Commitment Agreement
- Knowledge management

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Weeks #2, #3, and #4

Devising a project (#DP)

- MVP & Core use cases
- Business plan & pilot users
- Product mock-ups
- Work methodology & tools
- 3-sprint work plan
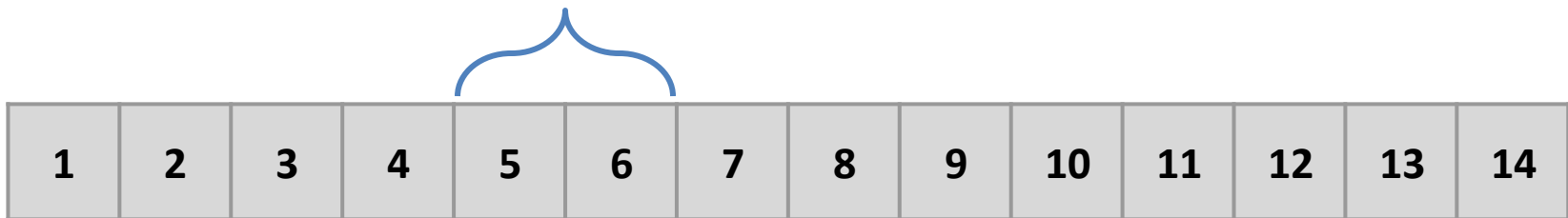- Real pilot users commitment (+ other group)

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Weeks #5 and #6

Sprint 1 (#S1)

- Working prototype of core use cases of MVP
- GitHub + GitHub Project
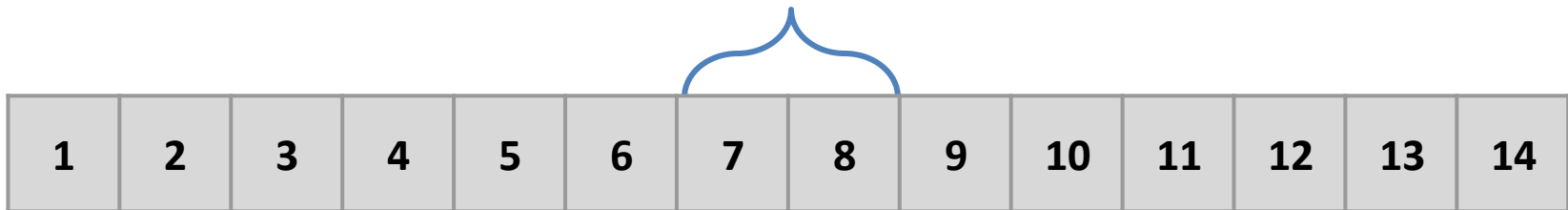- Deployed in App Engine (Google Cloud)
- Piloting plan

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Weeks #7 and #8

Sprint 2 (#S2)

- Working prototype of full MVP (core + admin + registry + payment)
- GitHub + GitHub Project
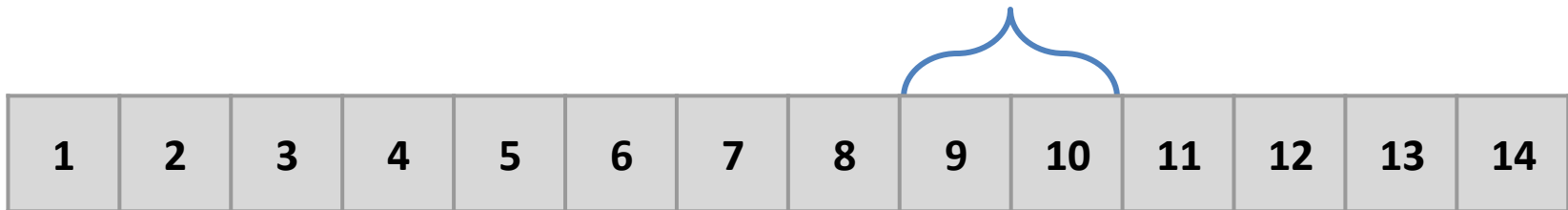- Deployed in App Engine (Google Cloud)
- Piloting feedback

1	2	3	4	5	6	7	8	9	10	11	12	13	14

UNIVERSIDAD Ð SEVILLA

Weeks #9 and #10

Sprint 3 (#S3)

- Final version of prototype
- Deployed in App Engine (Google Cloud)
- GitHub + GitHub Project
- Testing
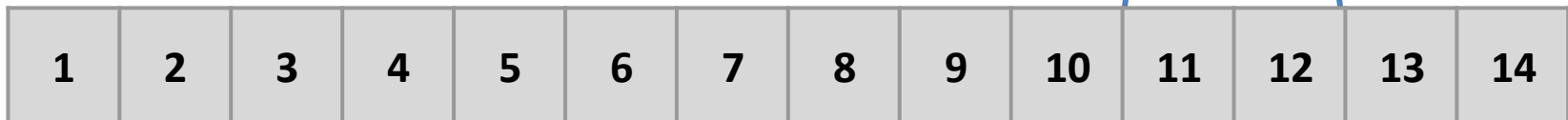- Starting some marketing tasks

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Weeks #11, and #12

Preparing project launch (#PPL)

- New version of prototype
- Deployed in App Engine (Google Cloud)
- GitHub + GitHub Project
- Advertisement campaign
- Launch plan in public event
- Competitors
- SWOT analysis
- Planning (technical, finances)
- ROI plan

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Week #13

Everything all right!!... Right??

Individual work review

1	2	3	4	5	6	7	8	9	10	11	12	13	14

Week #14: the World Project Launch

World Project Launch (#WPL)

- Final version of prototype
- Deployed in App Engine (Google Cloud)
- GitHub + GitHub Project
- **Public event** with companies, investors, lecturers, and students!!

1	2	3	4	5	6	7	8	9	10	11	12	13	14

UNIVERSIDAD Ð SEVILLA

# Week	Month	Day	Class Topic	Reviews	Schedule	
					Thursday	Friday
1	Jan	31	Warming Up			Discuss DP Goal
2	Feb	7	Devising a Project			Review Partial DP
3		14	Devising a Project			Review Partial DP
4		21	Devising a Project +TEST		Deadline DP 20 / 02 , 23:59	Evaluate DP Discuss Goals S1
Día de Andalucía		28				
5	Mar	7	Sprint 1	1/2 Sprint Review		Review 1/2 S1
6		14	Sprint 1 + TEST	S1 Review	Deadline S1 13 / 03 , 23:59	Evaluate S1 Explain Goals S2
7		21	Sprint 2	1/2 Sprint Review		Review 1/2 S2
8		28	Sprint 2 + TEST	S2 Review	Deadline S2 27 / 03 , 23:59	Evaluate S2 Discuss Goals S3
9	Apr	4	Sprint 3	1/2 Sprint Review		Review 1/2 S3
10		11	Sprint 3 + TEST	S3 Review	Deadline S3 10 / 04 , 23:59	Evaluate S3 Explain Goals PPL
Easter week		18				
11		25	Preparing Project Launch	1/2 PL Review		Review Partial PPL
12	May	2	Preparing Project Launch + TEST	PL Review	Deadline PPL 01 / 05 , 23:59	Evaluate PPL
April's Fair		9				
13		16	Individual work defense			
14		23	World Project Launch	WPL Review	Deadline WPL 22 / 05 , 23:59	Evaluate WPL

UNIVERSIDAD Ð SEVILLA

Roadmap

Co-ordinates

Context

Goals

Methodology

Evaluation

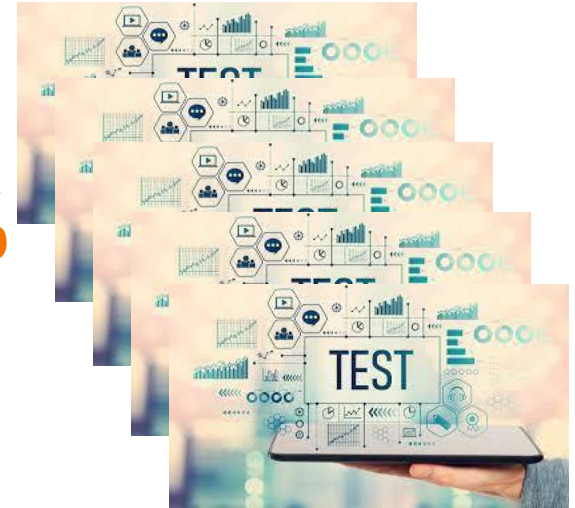UNIVERSIDAD Ð SEVILLA
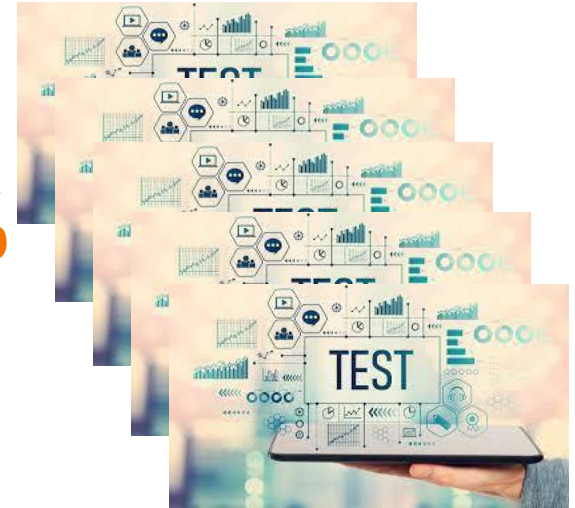
Official evaluations

May

July

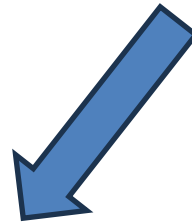November

May call: The grading formula
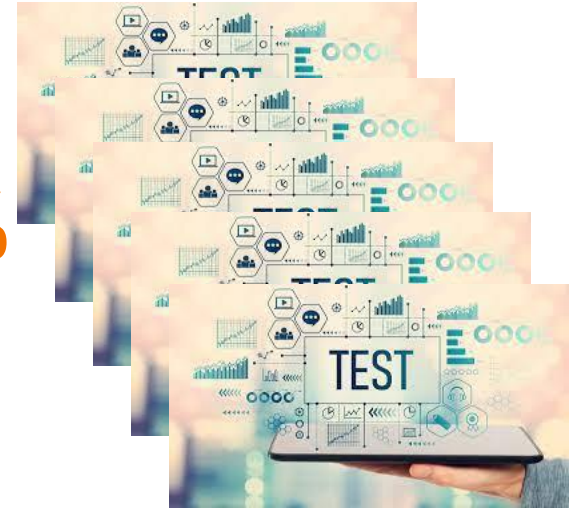
May call: The grading formula

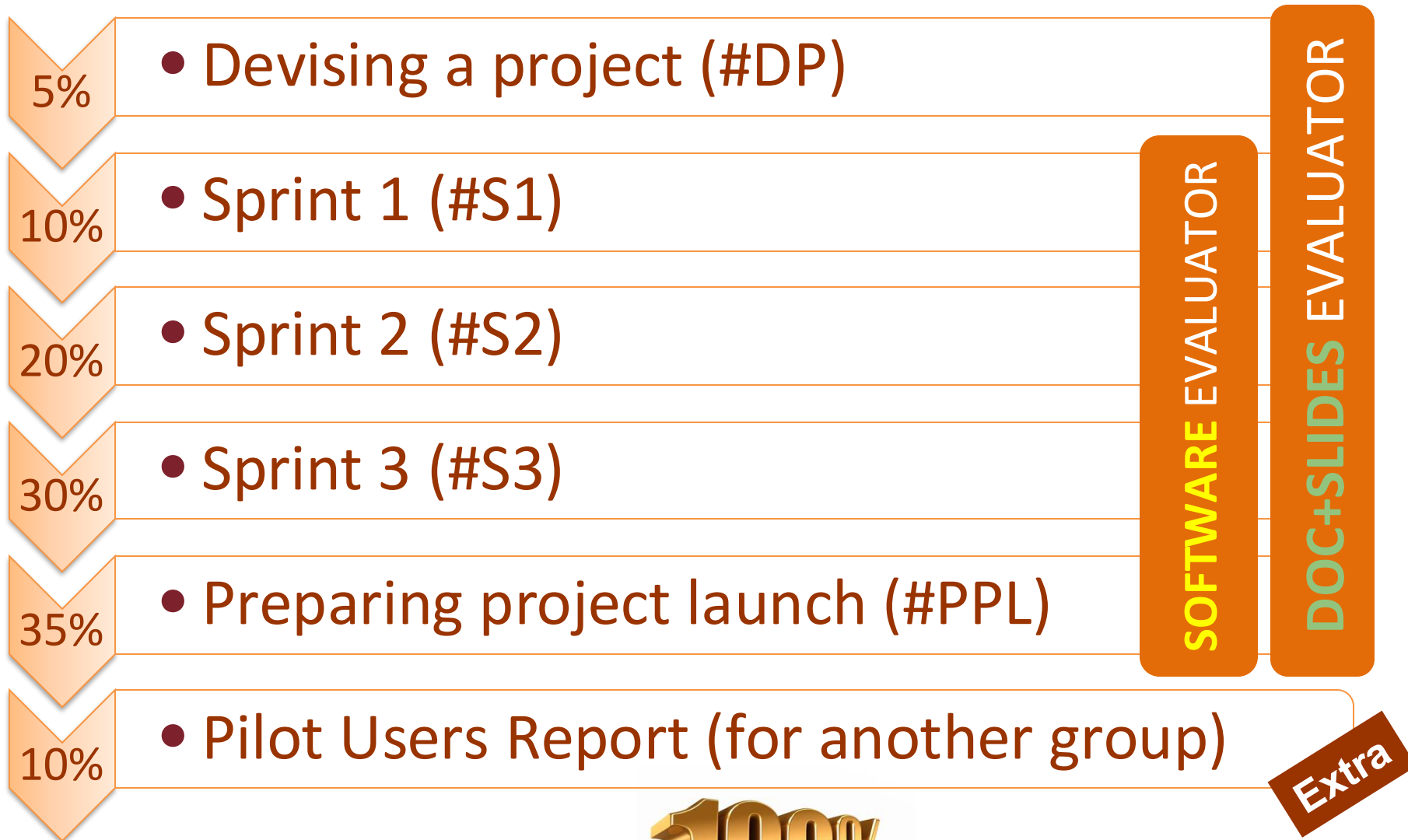$$\frac{T1 + T2 + T3 + T4 + T5}{5}$$

May call: The grading formula

90%

10%

$$PE \times \left(W \times \frac{A+B}{2}\right)$$

- PE = your performance evaluation
- W = weight accumulated in deliverables
- A = grade of your WPL presentation
- B = grade of your WPL project

Weight and evaluation of deliverables

- **5%** • Devising a project (#DP)
- **10%** • Sprint 1 (#S1)
- **20%** • Sprint 2 (#S2)
- **30%** • Sprint 3 (#S3)
- **35%** • Preparing project launch (#PPL)
- **10%** • Pilot Users Report (for another group)

SOFTWARE EVALUATOR

DOC+SLIDES EVALUATOR

Extra

Max. **100%**

Weight and evaluation of deliverables

10%

- Pilot Users Report (for another group)

Individual

4 Pilot Users Reports along the semester
(#S1, #S2, #S3, #PPL)

We Provide a Template to Report Issues
(Issue topic, reproducibility info, date, …)

The Development Team must rate each feedback received

$$score = \frac{\#S1 + \#S2 + \#S3 + \#PPL}{4} \%$$

Exempli gratia

#DP	#S1	#S2	#S3	#PPL	PURep.	A	B	Grade
PASSED	PASSED	PASSED	PASSED	PASSED	10	PASSED	PASSED	GRADE
0.05	0.10	0.20	0.30	0.35	0.10	8.00	8.50	9.08

#DP	#S1	#S2	#S3	#PPL	PURep.	A	B	Grade
PASSED	PASSED	FAILED	PASSED	PASSED	6	PASSED	PASSED	GRADE
0.05	0.10	0.00	0.30	0.35	0.06	8.00	9.00	7.20

#DP	#S1	#S2	#S3	#PPL	PURep.	A	B	Grade
FAILED	PASSED	FAILED	PASSED	PASSED	3	PASSED	PASSED	GRADE
0.00	0.10	0.00	0.30	0.35	0.03	10.00	9.00	7.34

#DP	#S1	#S2	#S3	#PPL	PURep.	A	B	Grade
FAILED	FAILED	PASSED	PASSED	PASSED	0	PASSED	PASSED	GRADE
0.00	0.10	0.20	0.30	0.35	0.00	5.50	5.00	4.46

Performance Evaluation $PE \times \left(W \times \dfrac{A+B}{2} \right)$

Student	Agreed Performance Evaluation						Total	PE
	#DP	#S1	#S2	#S3	#PPL	#WPL		
	10	10	10	10	10	10	60	1
	10	8	7	10	5	9	49	0.81
	6	5	4	7	6	5	33	0.55
Total	26	23	21	27	21	24		

Student	PE	Grade
	1	8
	0.81	6.48
	0.55	**4,4**

Session 13: Individual Work Review!!
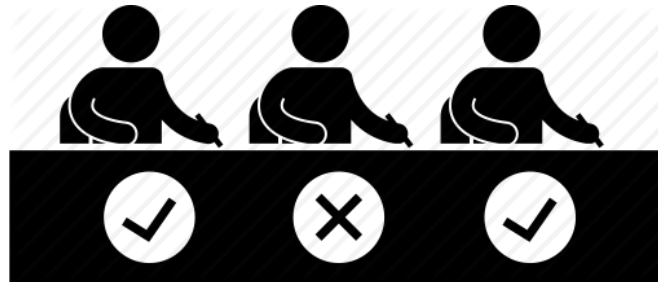
July and November calls

Same procedure but different project…

…and no feedback!

…and no extra 10% of Pilot Users Rep.!

UNIVERSIDAD Ð SEVILLA

Questions, please