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Information Systems 01PDWOV

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Books, notes are not allowed. Write only on these sheets.

Covid Green Pass check in schools

Since sept 14 employees of italian schools (teachers, administrators) must have a Covid Green pass to enter and perform their job. The school headmaster (preside) has the responsibility to implement this check in her school.

A Covid green pass is a declaration that certifies that a person has

-performed a Covid swab test with negative results in the previous 72 hours

-been vaccinated in the previous 9 months (time starting 15 days from performing the first vaccine shot)

AS IS process

The Covid pass is checked manually. At the entrance of each school some personnel checks the green pass provided by teachers and whoever works in the school (no students). The green pass is presented (either digitally on a smart phone, or on paper) and the personnel charged of checking uses the C19 app to do the check.

TO BE process

The check is automated, as follows.

The ministry of education has set up a web application, each headmaster of each school in Italy has an account on it. Each morning the headmaster logs into the application, and accesses the list of all employees of the school, for each of them the application shows if the employee has the green pass and can work, or not. No physical check is made at the entrance of the school.

The application works by processing the list of schools and their employees (managed by the ministry of education), and the list of green passes (managed by the ministry of health).

The green passes change every day (new vaccinations, new swab tests, expired vaccinations and tests). The information on new vaccinations and swabs is entered on another application, managed by the ministry of health, and accessed by all entities that perform vaccinations and swabs (pharmacies, hospitals and so on).

In the following *model the TO BE situation*.

1 Organizational model: list roles or organizational units involved

Ministry of education

School

Headmaster

Employee (professor, other)

Ministry of health

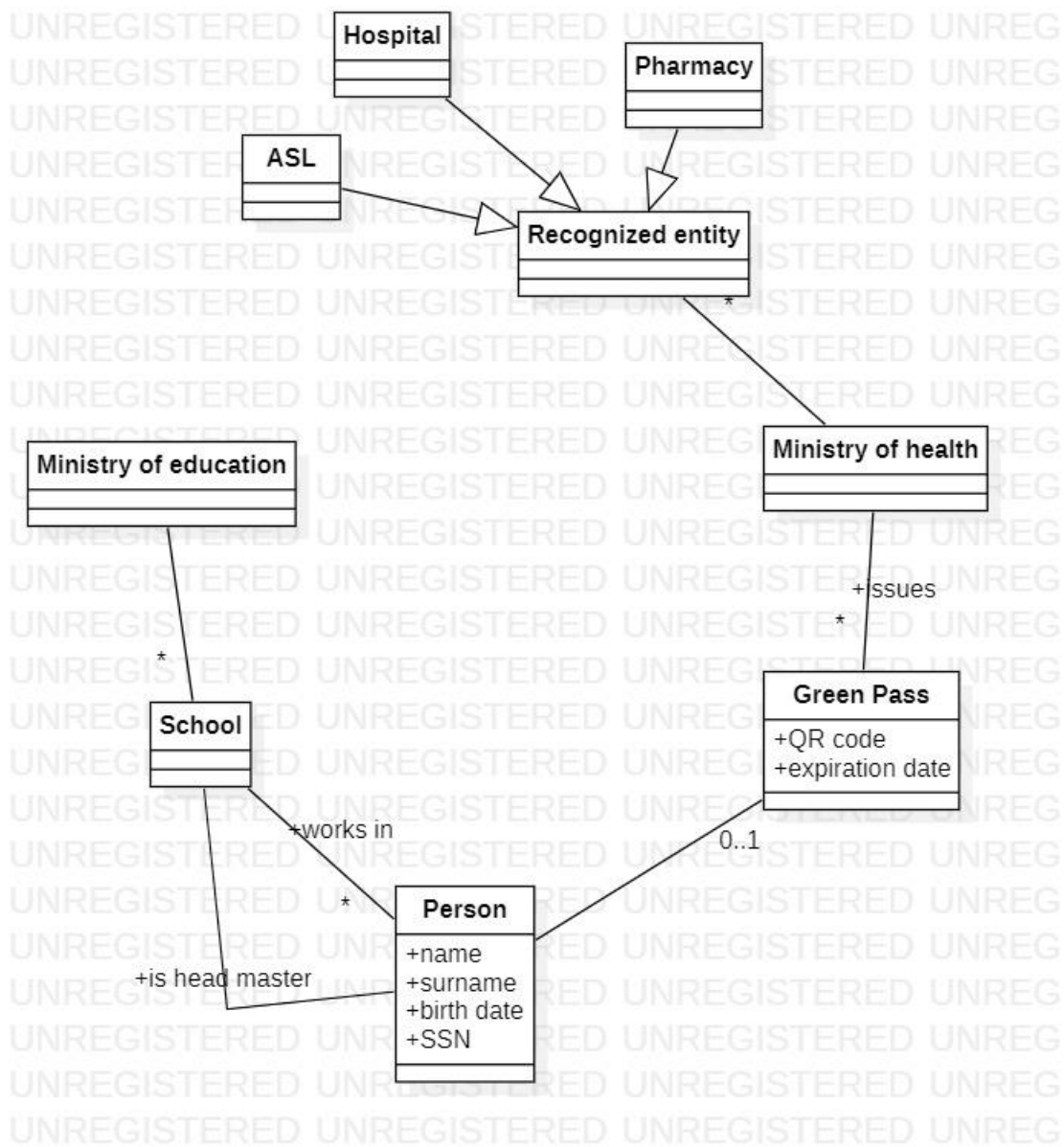
Pharmacy

Hospital

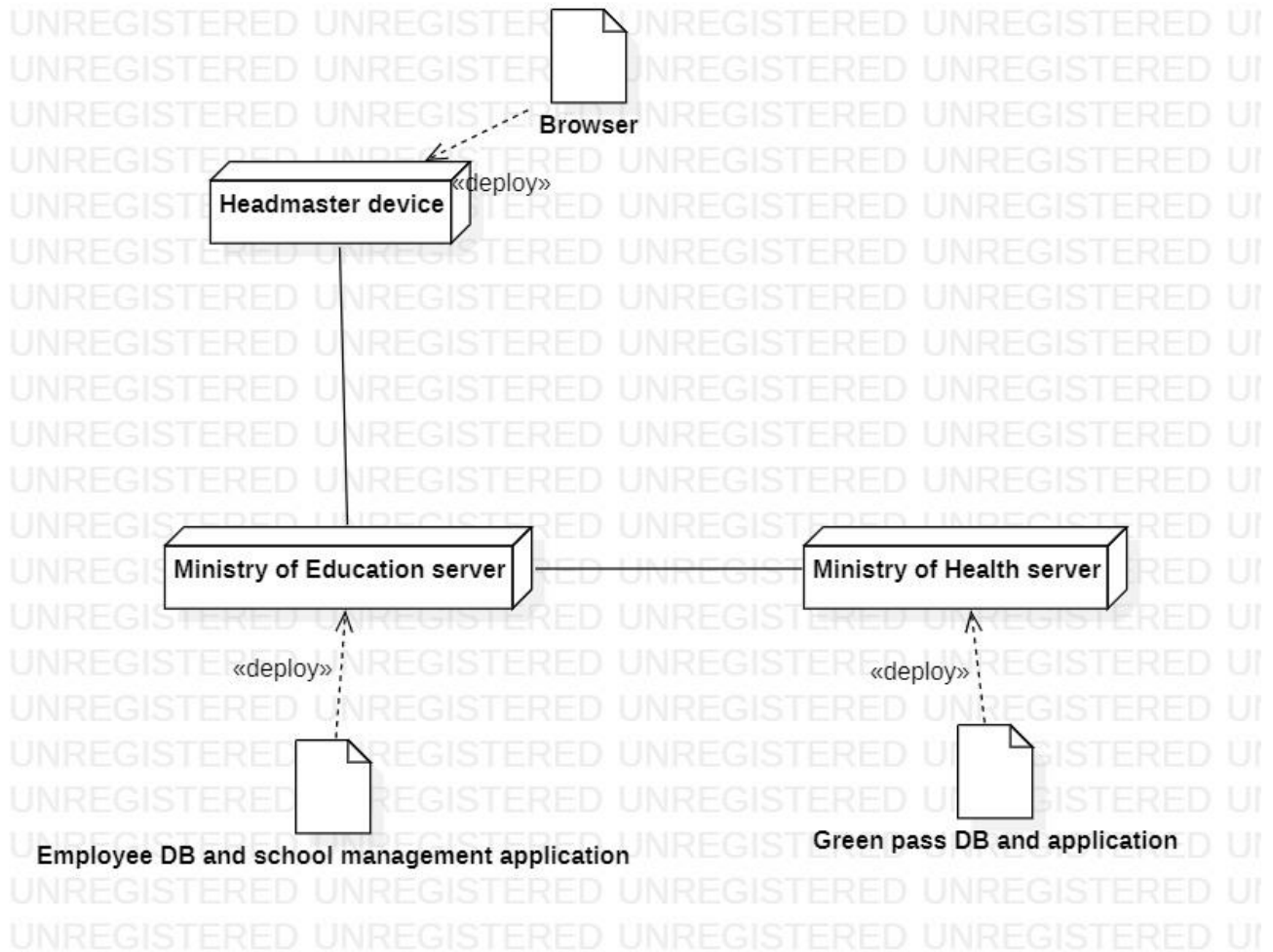
(any entity authorized to perform swab or vaccine)

2 Functional model: Design and model (using BPMN + UML class diagram) the TO BE process

name	input	output	description	Roles involved
Allow entrance to employees	Request to enter	Allow / no allow	Check if employee has green pass This process is needed only in AS-IS	Employee (checked) Employee (checker)
Check employee who can enter	Request list of authorized employees	List of employees per school, per each employee availability of green pass at day D	-For school S, for each employee in school, retrieve green pass info and compute if employee E can enter school in day D -Show list to authorized headmaster of school S	M of health, M of education
Record vaccination or swab or covid illness	New vaccination / swab	List of citizens and attached green pass (if conditions are met)	Task -Hospital records covid illness for person P -swab entity records covid swab performed on person P with result positive / negative -vaccination entity records vaccination performed on person P	Ministry of health, hospital, swab entity, vaccination entity
Record new school employee	New employee	List of employees, per school	-Record employee P starts working in school S -record employee P ends working on school S	Ministry of education



3-a IT Model / Technological model: describe the hardware architecture of the system
(use **UML deployment diagram**)



3-b Business rule: define (in English, or formally) at least one business rule for the process

5 Define the KPIs, considering these high level business goals (or CSF), CSF1 maximum convenience for employees CSF2 decrease cost of scholarship management.
If needed, define also indicators that are not KPIs.

CSF name	KPI Category (General, cost ..)	KPI Name	KPI Description	Unit of measure
	General	N_E	Employees per school (= checks per school per day)	
	Service	LT_check (employee checked)	Lead time to be checked on green pass, point of view employee who is checked. Includes queue time	time
	Cost	UC	cost to check one employee = time to do check * cost per hour	euro
		Check cost		
	Quality	Q	N wrong checks / total checks (wrong check = employee can enter, without green pass + employee denied access, although has green pass)	%

6 Compare the previous and the current situation, using the KPIs defined above

KPI	AS IS	TO BE
LT_check	Some minutes (depends on length of queue)	Zero
Check effort	Time to check one employee * N_E	Depends on how many teachers don't have green pass. For each teacher with no green pass the head master may spend time to control if she /he has entered in the school. Likely this control is not needed, teacher with no green pass receives no salary (this is computed upfront by the ministry application), so it is unlikely he/she comes to school to work for free, so check effort could be close to zero
Quality Q	Depends on strictness of control at entrance	Zero

- 7 Considering the ministry of education and the infrastructure it has to build or acquire for the TO BE, define the software functions needed

Process /Activity	Software function(s) needed
Check employee who can enter	For school S, for each employee in school, retrieve green pass info and compute if employee E can enter school in day D -Show list to authorized headmaster of school S
	Compute salary of employee, deducting days not worked because no GP

All other functions (record new swab, new vaccination, new employee) are already available

- 8 Considering the comparison in point 6, summarize pros and cons for the actors in the TO BE situation (add actors if needed)

	PROS	CONS
Employee (to be checked)	No control at entrance	
Headmaster (school)	No effort to be spent to check employees (by another employee who can do other tasks) Quality (no wrong checks)	
M education		Invest in new sw functions
M health		Invest in new sw functions