back2School
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The goal of this service is to create a backend for managing primary school bureaucracy. The service should be exposed as a REST API.

The back end should support the day-to-day operations of three kinds of users: parents, teachers, and administrators. A fourth kind of user exists in the system, that is students. However, students do not have access to the API.

Parents should be able to:

- see/modify their personal data
- see/modify the personal data of their registered children
- see the grades obtained by their children
- see/modify appointments that they have with their children's teachers (calendar-like support for requesting appointments)
- see the monthly payments that have been made to the school in the past
- see/pay (fake payment) upcoming scheduled payments (monthly, material, trips)
- see general/personal notifications coming from the school

Teachers should be able to:

- see/modify their personal data
- see the classrooms in which they teach, with information regarding the argument that they teach in that class, the students that make up the class, and the complete lesson timetable for that class
- provide grades for the students in their class
- see/modify the appointments that they have with parents

Administrators should be able to:

- see the students that are enrolled in each class
- create new students in the system and enroll them in classes
- create new administrator/parent/teacher accounts
- issue new payment requests to parents
- send general notifications to all the parents/teachers in the school, to the parents/teachers of a specific class, or to a single specific parent/teacher.

Use appropriate authentication to ensure that specific users can only interact with specific resources.

Evaluated on: design of the API (resources/URIs/representations) + hypermedia

BD Project
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The goal of the project is to infer qualitative data regarding USA flights during the years 1994-2008. The data can be downloaded from http://stat-computing.org/dataexpo/2009/the-data.html.

Each row in the data set contains the following data:

	Name	Description
1	Year	1994-2008
2	Month	1-12
3	DayofMonth	1-31
4	DayOfWeek	1 (Monday) - 7 (Sunday)
5	DepTime	actual departure time (local, hhmm)

6	CRSDepTime	scheduled departure time (local, hhmm)
7	ArrTime	actual arrival time (local, hhmm)
8	CRSArrTime	scheduled arrival time (local, hhmm)
9	UniqueCarrier	unique carrier code
10	FlightNum	flight number
11	TailNum	plane tail number
12	ActualElapsedTime	in minutes
13	CRSElapsedTime	in minutes
14	AirTime	in minutes
15	ArrDelay	arrival delay, in minutes
16	DepDelay	departure delay, in minutes
17	Origin	origin IATA airport code
18	Dest	destination IATA airport code
19	Distance	in miles
20	TaxiIn	taxi in time, in minutes
21	TaxiOut	taxi out time in minutes
22	Canceled	was the flight cancelled?
23	CancellationCode	reason for cancellation (A = carrier, B = weather, C = NAS, D = security)
24	Diverted	1 = yes, 0 = no
25	CarrierDelay	in minutes
26	WeatherDelay	in minutes
27	NASDelay	in minutes
28	SecurityDelay	in minutes
29	LateAircraftDelay	in minutes

Using both Hadoop and Spark provide the following information:

- the percentage of canceled flights per day, throughout the entire data set

- weekly percentages of delays that are due to weather, throughout the entire data set

- the percentage of flights belonging to a given "distance group" that were able to halve their departure delays by the time they arrived at their destinations. Distance groups assort flights by their total distance in miles. Flights with distances that are less than 200 miles belong in group 1, flights with distances that are between 200 and 399 miles belong in group 2, flights with distances that are between 400 and 599 miles belong in group 3, and so on. The last group contains flights whose distances are between 2400 and 2599 miles.

- a weekly "penalty" score for each airport that depends on both the its incoming and outgoing flights. The score adds 0.5 for each incoming flight that is more than 15 minutes late, and 1 for each outgoing flight that is more than 15 minutes late.

Also provide an additional data analysis defined by your group.

Use charts to present the information that you have extracted from the data set.