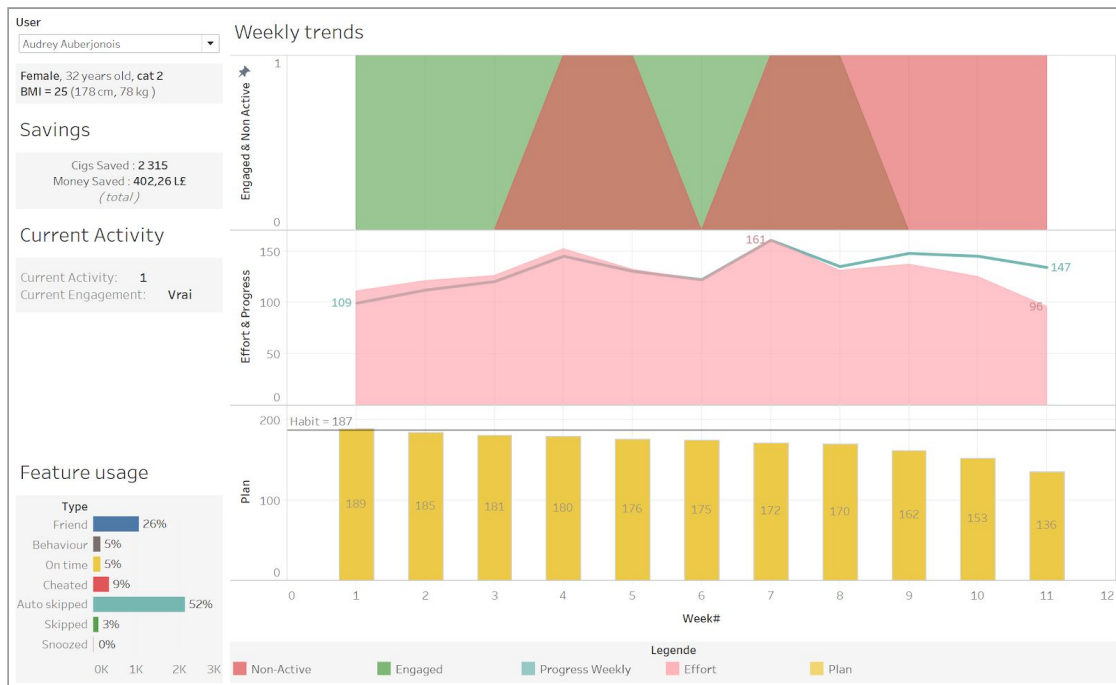


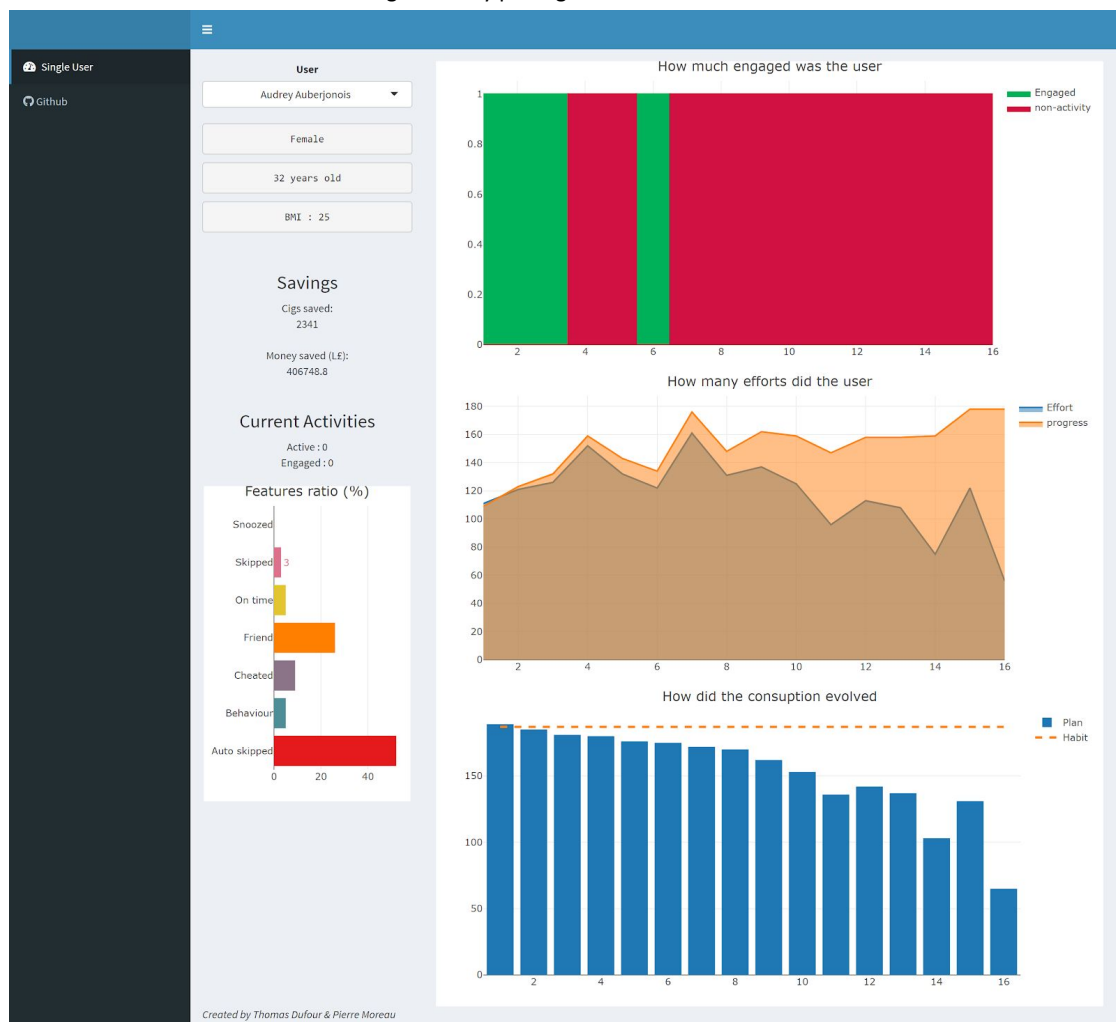
Dashboard

What we designed for the Single User dashboard, in Tableau Software :



Every displayed data has been processed and is our own defined KPIs except for the sex and age. The KPIs meanings and computations are defined in a next section. There are 12 KPIs on this dashboard, grouped in different categories. The chosen comparison period for the plots are the weeks (the behaviour week is excluded).

What we achieved to do in R using the Shiny package :



KPIS

PERIODS

The comparison windows we use are Day (with the marker “_d”), Week (“_w”), and WeekDay (“_wd”).

It's important to compare the users both relatively to the time they first started using the lighter to assess for evolution and impact of the product. It is expected that the consumption on working days should be different that the consumption on weekends, but from a week to another, the linearity should hold. This is why we thought of using 2 main trends to compare :

- Comparison between weeks, relative to the first week of usage. It shows the average progression of the user with the lighter
- Absolute comparison between weekdays : it shows the user's more refined habits between the working days and his days off.
- Comparing the users amongst each others day by day, relative to the first day of usage would not be relevant since a user that started on tuesday would not have the same pattern as a user that started on saturday.

#ontime, #autoskipped, #skipped, #cheated, #friend = Number of logs per window with the corresponding action. (ie **#ontime_w** = number of logs type “On time” in the week”)

TRENDS

Plan : the smoke plan defined by the algorithm of iBriquet. We don't have access to this algorithm, but we can count how many cigarettes the plan told the user to smoke.

- **Plan** = #ontime + #skipped + #autoskipped

Smoked : the actual cigarette consumption of the user, ie total number of cigarettes smoked (in the period).

- **Smoked** = #ontime + #cheated

Active : The user uses the device or not. (ie the lighter always skips or not)

ie : onTime --, cheated --, autoSkipped ++ => smoked / prediction -> very small (<30%)

- **Activity** = $\frac{\text{smoked}}{\text{plan}} = \frac{\text{\#ontime} + \text{\#cheated}}{\text{\#ontime} + \text{\#skipped} + \text{\#autoskipped}}$
- **Active** {= 1 iif Activity > 0.3} , {= 0 otherwise }

Engagement : engaged to the product as a smart lighter. Not necessarily to it's plan.

$$C = \text{corr}(\text{\#skipped}, \text{\#cheated})$$

$$V = \frac{\text{\#skipped} + \text{\#cheated}}{\text{Plan} + 1} = \frac{\text{\#skipped} + \text{\#cheated}}{\text{\#skipped} + \text{\#autoskipped} + \text{\#ontime} + 1}$$

- **Engagement** = C * V
- **Engaged** {= 1 iif Engagement < 0.6 AND Active = 1} , {= 0 otherwise }

Habit : the user's old smoking habit, in order to use as reference for further comparisons along the time relative to the time it started using the lighter. It is the average number of cigarettes smoked during the behaviour week.

- **Habit_d** = #behaviourTotal / 7
- **Habit_w** = #behaviourTotal

Progress : Measuring the relative progress towards a reduction of smoking, compared to the old habit. In a period, if he smokes less than what he used to, he's making some positive progress.

- **Progress_d** = Habit_d - Smoked
- **Progress_w** = Habit_w - Smoked

Smoke ratio : measuring relative progress between smoked vs skipped. It is not used anymore, since it has less impact than Effort, but it helped us construct the Effort KPI.

- **SmokeRatio** = #cheated + #ontime - #skipped - #autoskipped

Effort : Measuring Relative effort the user makes in the period, regarding its plan. If the user smokes less than its plan, he makes some positive effort.

- **Effort** = Plan - smoked = #skipped + #autoskipped - #cheated

SAVINGS

Cigarettes saved = (old daily consumption) * (nb of days between the first non behavioral action and the last) - (Minus the number of cigs smoked)

- **Cigs_Saved** = Habit * [DATEDIFF('day', MIN([Time]), MAX([Time])) - 7] - smoked

Money saved : Since users are Lebanese, an average pack of 20 cigs costs 3.475 L£

- **Money_Saved** = Cigs_Saved * $\frac{3.475}{20}$ = Cigs_Saved * 0.17375 L£

USER

Body Mass Index : A good indication of the ratio height / weight for the user. It can determine if the user is actually overweight or underweight.

- **BMI** = $\frac{weight(kg)}{height(m)^2} = \frac{weight(kg)}{(\frac{height(cm)}{100})^2}$

Age category : a 3 class index grouping the users together according to their age. It's easier to aggregate and process the info visually on a dashboard.

- **Age_Category** {= 1 *iff* age < 30} , {= 2 *iff* 30 ≤ age < 50 } , {= 3 *iff* 50 ≤ age }

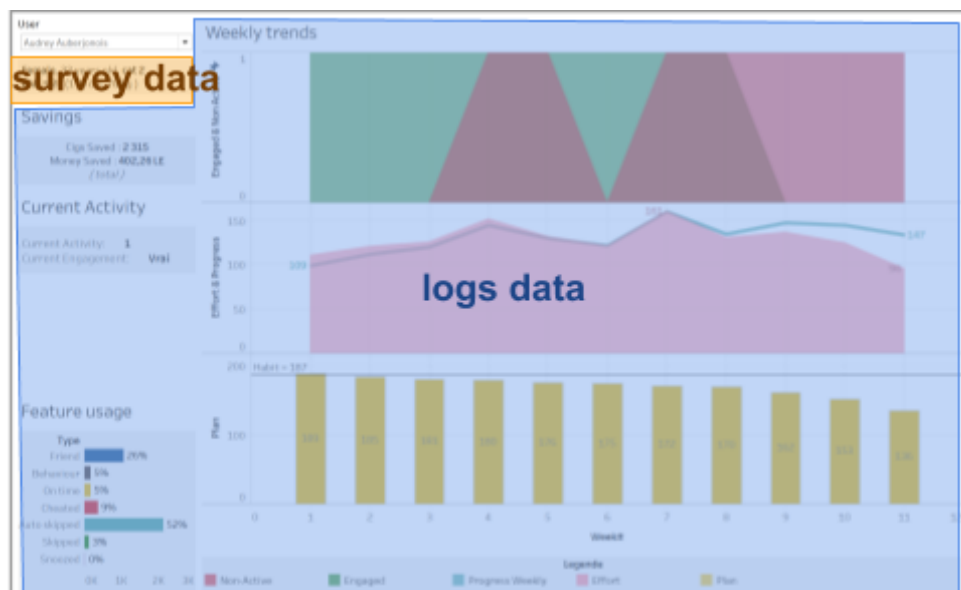
Considerations with the data

We had to **remove the first day of behaviour** for the customers because the first day of usage isn't a full day, so the lighter logs it as Behaviour, but starts a whole behaviour week (7 days) on the next day.

When the user stopped using the lighter for a long time, the lighter starts again by remaking **a new behaviour week**. This is the case of Alexis Delisle for instance, that stopped for 2 months and started using the lighter again. Likely he was contacted by the team. We chose to ignore this anomaly for the moment as it was too difficult to correct it in R and we had lots to do.



Regarding users that either didn't answered the survey (25 of them), or users that answered the survey but from who we don't have any logs (4 of them), we could have chose to propose only the inner join of both, but as the next picture shows, it seems more pertinent to keep all the logged users to have their logs info, even if they don't answered the survey, at least for this dashboard :



R code

Launch install.r first to install all the necessary packages
> install.r

To run our app, launch this command in R :
> runApp('shinyApp.r')