Complete usage scenario and original test suite

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Table 1: Real life usage scenario on our case study, with its analysis. Scenarios 1 to 13.

N	Description	Analysis
Situation: a group of friends discuss through the messaging application.		
1	Adult A is messaging his friends on his tablet at a Loud coffee shop. His tablet vibrates when he receives the message of one of his friend, Adult B.	
2	Adult B is joining his friend A. He receives a message and replies with his Tablet while walking a street not far away, on his 4G.	*(How was he notified of the message from A, if there were no Notification ? There might be **a mapping error**. Mute should be activated as default if the condition to activate Alarm or Vibration are not met.)*
3	Adult C is reading at home when his tablet alerts him of a message. He sees that it is a message coming from a group of friends who are joining together at a nearby coffee shop.	
4	Likewise, Adult D was at home when he was alerted of a message. With a simple glance at his cutting edge Tablet, he enjoys a Complete Layout and immediately sees the complete information: the message, the hour, the group of friends.	*The features Layout and Complete were just activated. But then, what was the Layout of the preceding Adults if there were none? What happens if the messaging application has no Layout? There is an **incoherent feature adaptation** of the system to the contexts. The feature model lacks a default feature or an alternative to having an explicit Layout.*
Situation: a group of teenagers discuss through the messaging application.		
5	Teenager A is writing messages with the virtual Keyboard, on his Smartphone. He's also updating his Profile Picture with the camera of his smartphone.	*We have no information on his Connection. Hence, he can't send Photos, but Sending messages is still active. If there is no Connection, it shouldn't be possible. The environment is **incorrectly modelled**.*
6	Teenager B answers to Teenager A on his desktop.	
7	Teenager C chats with them but has a good Connection, and he can send photos to his friends.	
8	A Teenager borrowed the Tablet of his father to chat with his friends.	
9	Teenager D is also chatting with a friend. However, his wifi is bad, so he's walking around the house to find a place with better wifi reception, hence sending Vocals to his friends while walking.	
10	Teenager E is receiving messages from his friend Teenager F asking him to join him, but no alarm is triggered as he's reading in the school library.	
Situation: several people use a Desktop in a cybercafe, where there is a lot of Noise.		
11	Teenager F is playing on a Desktop in a cybercafe. He's chatting with his friend and is alerted by a Vibration that his friend finally answered him.	*The environment is Loud, so he's alerted by a Vibration, which is expected. However, he's currently using a Desktop; and Vibration on a Desktop looks incoherent. There might be a **mapping error**.*
12	Not far from Teenager F, a man is drinking a cafe while scrolling on his cutting-edge Smartphone, sending Photos and listening to Vocals.	*Is he able to listen to the Vocals, as he is in a Loud environment? While not an error, as it could be possible, we could **improve the application** by adding TextToSpeech and SpeechToText features.*
13	In another corner of the cybercafe, Teenager G is focused on a school assignment. Fortunately, the application does not distract him as it is Mute.	

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Table 2: Real life usage scenario on our case study, with its analysis. Scenarios 14 to 17.

N	Description	Analysis
	Situation: several users are in a school's library.	
14	Another teenager works on this assignment at the school's library. He uses his Tablet to read the school books, and is not distracted by the application.	
15	His friend is there too. He's receiving multiple Vocals from a chatty friend, but the Tablet does not alert him of it, to let him focus.	
16	The librarian is working on his laptop (Desktop), and he supervises the library, going back and forth in it. Naturally, the application is Mute on his Desktop.	
17	Once home, the librarian starts cooking. Even if not in a quiet environment anymore, the application remains mute as the librarian is busy. Unfortunately, he can't send Photos of his meal, as his Connection is Bad.	

Table 3: Full test suite the usage scenarios are based on.

N	Activated contexts	Activated features
1	Adult, Loud, Tablet, Available	Search, Description, Notification, Vibration, Keyboard
2	Adult, Normal, Tablet, Connection, Bad, Available	Search, Description, Keyboard, Light, Mode
3	Adult, Normal, Tablet, AudioCard, Available, Peripheral	Search, Description, Notification, Vocal, Keyboard, Alarm
4	Adult, Normal, VideoCard, Tablet, AudioCard, Available, Peripheral	Search, Description, Complete, Notification, Layout, Vocal, Keyboard, Alarm
5	Normal, VideoCard, Teen, Smartphone, Available, Peripheral	Layout, Keyboard, Minimalist, ProfilePicture, Match
6	Normal, VideoCard, Desktop, Teen, Available, Peripheral	Complete, Layout, ProfilePicture, Match
7	Normal, VideoCard, Desktop, Good, Teen, Connection, AudioCard, Available, Peripheral	Photo, Complete, Notification, Layout, Standard, Vocal, ProfilePicture, Mode, Match, Alarm
8	Normal, VideoCard, Good, Tablet, Teen, Connection, Available, Peripheral	Photo, Complete, Layout, Standard, Keyboard, ProfilePicture, Mode, Match
9	Normal, Teen, Connection, Smartphone, AudioCard, Bad, Available, Peripheral	Notification, Layout, Vocal, Keyboard, Minimalist, ProfilePicture, Light, Mode, Match, Alarm
10	Quiet, Teen, Connection, Smartphone, AudioCard, Bad, Available, Peripheral	Notification, Layout, Mute, Vocal, Keyboard, Minimalist, ProfilePicture, Light, Mode, Match
11	Loud, VideoCard, Desktop, Teen, Connection, AudioCard, Bad, Available, Peripheral	Complete, Notification, Layout, Vibration, Vocal, ProfilePicture, Light, Mode, Match
12	Adult, Loud, VideoCard, Good, Connection, Smartphone, AudioCard, Available, Peripheral	Search, Description, Photo, Notification, Layout, Standard, Vibration, Vocal, Keyboard, Minimalist, Mode
13	Occupied, Loud, Good, Teen, Connection, Smartphone	Notification, Layout, Standard, Mute, Keyboard, Minimalist, ProfilePicture, Mode, Match
14	Occupied, Quiet, Good, Tablet, Teen, Connection	Notification, Standard, Mute, Keyboard, ProfilePicture, Mode, Match
15	Occupied, Quiet, Tablet, Teen, AudioCard, Peripheral	Notification, Mute, Vocal, Keyboard, ProfilePicture, Match
16	Occupied, Adult, Quiet, VideoCard, Desktop, Good, Connection, Peripheral	Search, Description, Photo, Complete, Notification, Layout, Standard, Mute, Mode
17	Occupied, Adult, Normal, VideoCard, Desktop, Connection, Bad, Peripheral	Search, Description, Complete, Notification, Layout, Mute, Light, Mode

Table 4: Full test suite the usage scenarios are based on, in terms of (de)activations.

N	Contexts act	Contexts deact	Features act	Features deact
1	Adult, Noise, Loud, Device, Context, Tablet, Age, Available, UserAvailability		Text, Search, Feature, Display, Description, AddSystem, Notification, FriendName, Vibration, Receiving, Keyboard, MessageType, Group, Friend, ContactList, Sending	
2	Normal, Connection, Bad	Loud	Light, Mode	Notification, Vibration
3	AudioCard, Peripheral	Connection, Bad	Notification, Vocal, Alarm	Light, Mode
4	VideoCard		Complete, Layout	
5	Teen, Smartphone	Adult, Tablet, AudioCard	Minimalist, ProfilePicture, Match	Search, Description, Complete, Notification, Vocal, Alarm
6	Desktop	Smartphone	Complete	Keyboard, Minimalist
7	Good, Connection, AudioCard		Photo, Notification, Standard, Vocal, Mode, Alarm	
8	Tablet	Desktop, AudioCard	Keyboard	Notification, Vocal, Alarm
9	Smartphone, AudioCard, Bad	VideoCard, Good, Tablet	Notification, Vocal, Minimalist, Light, Alarm	Photo, Complete, Standard
10	Quiet	Normal	Mute	Alarm
11	Loud, VideoCard, Desktop	Quiet, Smartphone	Complete, Vibration	Mute, Keyboard, Minimalist
12	Adult, Good, Smartphone	Desktop, Teen, Bad	Search, Description, Photo, Standard, Keyboard, Minimalist	Complete, ProfilePicture, Light, Match
13	Occupied, Teen	Adult, VideoCard, AudioCard, Available, Peripheral	Mute, ProfilePicture, Match	Search, Description, Photo, Vibration, Vocal
14	Quiet, Tablet	Loud, Smartphone		Layout, Minimalist
15	AudioCard, Peripheral	Good, Connection	Vocal	Standard, Mode
16	Adult, VideoCard, Desktop, Good, Connection	Tablet, Teen, AudioCard	Search, Description, Photo, Complete, Layout, Standard, Mode	Vocal, Keyboard, ProfilePicture, Match
17	Normal, Bad	Quiet, Good	Light	Photo, Standard