| Themes | Labels | Example Quotes |
|---|---|---|
| Making design moves | Discussing design moves | "OK, you're on the intake page or seeing just the intake, and then you will have a small button." "A-ha, so it could be like.." "icon, something like this.." ``Yeah'' (P15) |
| | | "And that is, I don't know how it is measured. maybe they can" "We can maybe on the beginning, ask to measure the body parts or something like that so he can do it later" "But he can do it every day maybe." "No, every week. Or something like that." "Okay." (P9) |
| | | "You could have a pop-out the time" "Maybe just like the current time or something that and maybe just like a change or something like that. If he..presses" (P8) |
| | | "Okay, lets have a text box for entering the height and weight" "umm, maybe a drop down would look better" "Okay, it seems better!" (P8) |
| | Generating multiple design options | "We can add into the `diet screen' an option to recommend." "Or rather it should be over here...you select and you search." (P2) |
| | | "No, I think that that is good that we measure during the activity. Give him the possibility to measure it during the activity" "And maybe to change this.." "Yeah, even, you give the possibility to enter the time himself. If you forgot to press, the play button'" "OK, OK, OK" (P3) |
| | | "On the calorie burned screen, we could also show the date and time , as well as heart rate" " Or, we can have a welcome page and then have shorcut options on a lower menu bar that takes you these other screens" (P17) |
| | Making moves | "For this, we can have help me button so you can propose exercise, you can do whatever you want. And eat this meal or skip this or, best practice to reach this goal." "you have, all the information you need" (P2) |
| | | "Yeah, to input your data, of course, yeah. I forgot about that. We add a button where you can, or, even better, when you sign in the app, it makes you input your, initially, your weight, height, age, the basic information" (P3) |
| | | "Okay let's just do quickly this. So it is here's the calendar, and so that is and in lower part of the form, there are details about each day so when he selects one day, this part will be changed. And so maybe he will, have there, combo boxes, which are, will contain all exercises and, it will be set to recommend but he can change it for his own" (P4) |
| | | "Creating a drop down for entering the height, weight and age options, once user enters , displaying a text box showing calculated BMI, and the catrgories - 'normal , overweight, underweight " "Yes, you can have all this information automatically displayed on a click of a button" (P17) |
| | Trying to satisfy all requirements | "May be we could have another button here that says can play music" "Do we need that?" "Yes, that's a requirement." (P19) |
| | | "Yeah, you can't assume that, right?" "It's OK." " Until we run into a wall " "Ok And, maybe we should, try and do all requirements" (P8) |
| | | "We need to cover all these, requirements, OK" (P2) |
| | | "Did we cover most of it?" "Um.. We need to worry about the, we need to look at the, last one, which is, necessary" (P1) |
| | Trying to satisfy simple requirements first | "We could start implementing all the simple requirements on the first page" "Yeah, let's check what all could be done" (P10) |
| | | "I will input this now. OK, let's stick to that and then we'll see. So we start up with something simple. Like, one. And that one is, for here they have, OK, heart rate, stress" (P3) |
| | | "Lets try to draw the sharing of achievements on social media" "No first lets only implement the scrren where we can suggest healthy meal options..Its easier that way" "Okay,cool!" (P5) |
| | Trying to satisfy high priority requirements | "So we have covered the high ones" "Yeah, the system shall track BMR. So, it's already done.. this is a high one. So you have put it in this." (P8) |
| | | "Okay so let's go a little bit high, is this now... completed?" (P6) |
| | | "Lets implement the feature of adding meal options and calculating calorie intake" "We have few reuirements like ...which are of higher priority, lets do that" (P1) |
| | Generating innovative ideas | "So, because we need diet planning we'll have to have recipes. I would because there isn't such an explicit requirement but for example I'm vegetarian, I should be able to tell the system that I'm a vegetarian.." "Then system should filter out all the foods that are non-vegetarian." "Yeah exactly." (P6) |
| | | "So we would have to, have something like, advice. Something like this. Something fancy. It doesn't have to be a rectangle. It can have curvy edges. But, if you press this, then you would get, something, like, you should drink this, you should eat this, you should train like this. And, to reach your BMR goal for today. Nice. And here, you should be able to, heart rate history. You should, I mean you should keep this information" (P2) |
| | | "Since we are already displaying sleep patterns, lets have them colour coded, 3 different colours to show light , deep sleep and awake patterns" "Yes, this would make it easy for user to track their sleep patterns" (P6) |
| Uncritically accepting | One participant accepts others decision | "Well the analysis screen would be the most complicated one. I don't think we have time for that now" "Okay, sure" (P6) |
| | | "But I don't think we can do much in ten minutes." "Okay I don't know I don't know" "You're senior" (P6) |
| | | "I think we should implement requirement 1 first as it would dictate the entrie application'l" "Yes, I agree with you" (P19) |
| | Accepting features of existing examples | "You have all the history, in one click. And here you have, most of the fitness apps like FitBit have this, so why not use it?" "Yeah, okay" (P2) |
| | | "I've seen some apps that usually sign" "Health apps usually have those that user preferences after you log in that you can always see details" "Yeah with his details and maybe workout goals" (P7) |
| | | "And also, kind of integration with Spotify or, another provider like Pandora like in other health fitness app I have come across" " We should do exactly that"(P1) |
| | | "You have all the history, in one click. And here you have, most of the fitness apps have this, so, why not use it?" "Yeah, we must, like Spotify" (P2) |
| | | "I think we should implement the feature of allowing the user to enter the kind of food eaten in a day which calculates the daily calorie intake, like used in the fitbit app" "Yes, this would be useful to the user to track their daily nutrition and workout targets" (P19) |
| | Accepting priorities | "If we have to design an app that shows all these five requirements that are on a high priority, we would probably want to have all the data on one screen" (P16) |
| | | "Do you agree that we find a such application" "Maybe, later when we see" "Now high, high-medium, medium first" "So we need to measure calories" (P9) |
| | | "The highest priorities are, measure calorie intake and track eating. Yes eating habits, count calories, so this." "So yes maybe we should need like a menu" (P7) |
| | | "We must implement this to make the user to share the health data on social media" "No, but this requirement is of low priority" "Okay, lets focus on the high priority first" (P19) |
| | Accepting requirements | "So now we have requirement [this], to provide workout history and performance analysis" "Yeah, that could be on the main page that given history and performance analysis" (P11) |
| | | "We already keep a track on the..so this is, requirement, one and two" "Yeah. cool." "Sure." (P1) |
| | | "But, that is not the requirement. The user has to measure BMI first, this is the requirement we must do" (P4) |
| | | "Let's complete this.. The sleeping pattern one, yeah so.." "Which is only one requirement" (P1) |
| | | "So you're gonna get it first time, right?" "Okay but forget this" "Okay, forget about that first time. We should focus on the requirements" (P5) |
| | | "Lets try to make some thing here which makes the app different?" "I think we should focus only on the given requirements now" "Ok, we can think of additional features later" (P11) |
| | Accepting early ideas | "Or it could be easier to use some kind of Google log-in or something similar" "Yes, good idea" "But the data it handles quite private" "Doesn't matter, yeah" (P17) |
| | | "I think form should accept some, data from him about his type of body, blood group and that stuff which affects the.. food he should take" "Yes. Let's do this" (P4) |
| | | "Like a menu?" "Yes like a menu, so we can choose between them" " I think that's a good idea, so we can slide between them" (P6) |
| | | "When we have the sleeping pattern graph, we should allow the user to swipe to a particular time to see the specific details like 'deep or light' sleep." "Oh yes, this is a great idea" "But it might be a bit complex" "No, I think we can manage to do it" (P12) |
| Rejecting | Rejecting design moves | "I just thought we could split the screen and it shows you the current activity and any previous activities" "No, it can still show the previous one. Let's stick to this way for now" "Okay, whatever" (P16) |
| | | So, do you want, do you have any other ideas for that? Number seven." "Well, may be a colored graph?" "No..let's do this" (P6) |
| | | "Like a list.. with, a list is break down by, breakfast, lunch, dinner. So you can have, a list of meals." "What I was thinking, was, what if we have, like say.. I'll actually rub it off if we don't just go ahead with it but, like say add, a meal, right? And the next screen, can literally be." "Let's keep it as a list only" (P1) |
| | | "I think we should have 3 colours to show sleep pattern for deep sleep , awake and light sleep" "No, lets try to provide a graph view" "Umm..Okay" (P20) |
| | Rejecting complex design ideas | "This gets more complicated for some things example... So it can be really complicated" "Yeah, it can be complicated" (P8) |
| | | "Yes. So user name password and that should be enough." "Okay [laughing]" "Then it will be too complex" (P7) |
| | | "Lets try to have a pie chart here which shows the records of previous 3 weeks burnt calories" "This could be complicated...we need to store the previous data and calculate it" "The calculations would be complex, Okay other than this..."(P15) |
| | Rejecting low priority requirements | "Let's take, stick to the stuff which is no low priority like..this" "Yes" (P6) |
| | | "With iOS and Android. But at this level we..." "Maybe we shouldn't think about that level" (P7) |
| | | "Lets try to implement the music now" "Isn't it a low priority here?" "Yeah, but we can leave it...ok let's see other ones" (P14) |
| | Rejecting requirements due to no knowledge | "So on to requirement 10, we shouldn't consider much on this one?" "Yeah.. it's more like a system requirement, I don't know...let's move on" (P13) |
| | | "Okay, we can change. Sixth, track BMR. Basal metabolic rate. I don't know what is this" "Neither do I" "No idea" (P11) |
| | | "So now we need to check requirements in medium" "I think they are all inter-related" "Okay, am not so sure about this" "Then lets come back to these later" (P16) |
| | Rejecting because many requirements already implemented | "Maybe it's too much specifications" "Maybe, this is too much and we can skip it. You just put this, meals, just search for it" (P2) |
| | Conflating with other (seemingly similar) requirements | "Yeah. We're missing so much more. Drinks would go the same, so, we actually don't need drinks here, because we covered it in meals" (P2) |
| | | "Yeah, lets calculate the calories burned and BMR" "No, these two are different requirements" "Oh, I thought they were inter-related" (P17) |
| | Rejecting specifications due to time constraints | "Well the analysis screen would be the most complicated one. I don't think we have time for that now" "Yeah, let's check other ones" (P6) |
| | | "Do you think we can have the advertisements for different health food here?" "No, I dont think we have time for that, lets focus on the list" "Well, okay..i think it will be good though" (P21) |
| | | "OK, but maybe, sleeping habits is, more important for your progress as, for, I don't know, physical look or.." "Yeah, I agree that it's important but I think that it would take up a lot of time" (P3) |
| | Rejecting requirements temporarily | "Yeah. But maybe workout should improve generally, I don't know..maybe they could.. okay maybe we can come back to that later" (P7) |
| | | "This seems a bit confusing" "Yeah, maybe we should clarify somehow" "Let's finish the rest and come back to this later" "Okay, cool!" (P1) |
| Grouping | Grouping seemingly similar requirements | "So recommend recipes and recommend workouts and recommend diet food, all could be groped as one. They all say recommend" "Yeah, okay" (P11) |
| | | "Yeah, that's what I'm trying to so that's, the diet planning definitely we need. The system recommends recipes. Sort of related to diet planning. Recipes." (P6) |
| | | "Exactly, it's a group. The first row with related to each other." "Yes so there we'll.." "Maybe we can just start by that, grouping them. What shall we call it? Something like diet planning. Diet planning or let's call that...so the first two are diet planning, count calories burnt during workouts" (P6) |
| | | "The graph is based on things inputted for food and workout" "Yeah, I man these are similar requirements and can be grouped" (P6) |
| | Grouping as input-type data | "We put a dashboard feature." "like for input data feature." "So yeah, let's group them as input data" (P1) |
| | | "But that's the one, that's the point. You should have some places to get inputs for your application. You need to know where that BMR comes from. It can't just appear from nowhere you know? You have to input it" (P5) |
| | Grouping as user needs | "But he's looking at track of workouts, what he need to do, like swimming." "There is no want. There is just need" (P9) |
| | | "Well, we should consider...like this..diet food..its a need" "Yeah, may be you can say that" (P9) |
| | Grouping as notifications | "Users plan workouts, this is more like a, reminder, a notification system. So is recommend activities and recommend diet food." "Yeah, these are notifications" (P1) |

| | | |
|---|---|---|
| | | "Recommend activities. That's a.." "Notification" "Yeah" (P1) |
| | Grouping as a feature | "So measure heartbeats and beats per minute..." "It's a feature." "Yeah" (P1) |
| | | "Yeah. Analyse sleeping habits, that's a feature" "Cause it needs to.. " (P1) |
| | Grouping requirements of same priority level | "The first two high priority tasks of measuring calorie intake and what user eats and drinks is the same thing" "That's true" "So those are kind of easy to put together..."(P15) |
| | | "Yeah, but it's lower priority... ok let's group them..." (P2) |
| | | "So now high-medium..." "Okay. Maybe we can start by grouping them" "Okay sure, yes" (P6) |
| | | "Yes, basically we need to group those as High-Medium priority because they are high" "Yeah.." (P21) |
| Questioning | Questioning priority levels | "The system must allow the user to plan workout...this isn't very important. Shall track speed and distance..this is very important" "Me too" (P21). |
| | | "The document says must recommend diet food " "Well, I guess the sharing on social media should be done first?" (P11) |
| | | "Generally, I agree. But, I think that the, Facebook-sharing part should be higher, up in the priority, because of today's trends and, the usual social networks and everything" (P3) |
| | Questioning existing examples | "They FitBit app have sensors and they can do precise measuring.. running is based on GPS." "Yeah, maybe we should do something else. GPS is not always good and reliable." (P3) |
| | | "Yeah, it's to let the customer, track, what they need to, We need.. There is an application, My Fitness app, which allows you to enter, every time you eat something, which is a pain in the ass" (P1) |
| | | "Other apps dont suggest healthy food options and recipies " "Yes, maybe we should try to have that in ours, it would be good" (P1) |
| | Questioning client's needs | "Do we have anything else here? It does say, performance analysis. So, we should even do this? May be we should check with our client, what does he mean by performance analysis." "But, if he means in the sense of, training activity, then we will need to add it to this screen or even, I don't know, provide a screen, or may be just not have this here." (P3) |
| | Questioning available technology | "If we rely on sensors, maybe in ten years, we can have this, but I don't trust the technology. I trust the user more." (P2) |
| | | "This one is huge phone but what with this one? Then all phones from a few years ago that they doesn't have that much" "Well the phones that are that small it's like you zoom it and I don't know" (P5) |
| | Questioning requirements | "We don't have to, do we have to.. include all the.. But, why would someone who is.. why would you listen to music?" (P2) |
| | | "I'm not clear with only is meant by, performance analysis. Is it working out or is it, just that, we talked about earlier. Because if it's working out, then it's.. then it has to go, pair and pair with those goals I mentioned earlier" "Yeah, this doesnt make sense" (P3) |
| | | "Burn calories...number of steps, this could be miscalculated, like it is recorded even when you are not working out , just walking from the room to the kitchen" (P2) |
| | Backtracking on earlier decisions | "Are you quite sure, that beat per minute could actually track when you are sleeping? What if you're not sleeping. You're TV and your heart beat is all down, app would track that you are sleeping." "In the future those sensors should be more reliable." "You can either have the user enter it or, measure if he doesn't have a sensor." "Exactly, like to have something similar. But, I would not rely totally on sensors." (P8) |
| | | "Let's go and check what we did for recommend food" "Yeah, may be make it same way as recommend exercise?" (P21) |
| | | "There's always, I think you can do it by sensors, actually measure, the rate, or you could do some calculations, say, male or female, how many years they have, which kind of work do you do. And they think you get some kind of" "Statistics" "Yeah..or may be even just put it...or may be even sensors... lets use sensors" (P8) |
| Assuming | Assuming on behalf of the users | "How we will measure calories in it. Will user, write?" "Maybe yeah, he will write down." "Okay, we suppose" (P9) |
| | | "How will we know when the user has started workout?" "Probably, the user clicks the button ' begin workout' and then the sensor begins to calculate direction and elevation" (P9) |
| | | I think it can do measurements all of the time. With external devices which do that and then just collects the data and you can analyse it something like that. Maybe we can presume that users won't need to do that" (P6) |
| | | "So we need the user to select his goals, and, then we have to show somewhere those recipes being displayed. But, we basically have, can assume that we have those, the recipes themselves" (P8) |
| | Assuming relative importance | "Now, what is the most important thing to the user, to know the amount of calories or what he actually ate? I think the calories are the most important than other ones here" (P8) |
| | | "I believe that people who use this app would want only music in it" "It helps to lose all the weight and be healthy isn't it" "Yeah..haha" (P17) |
| | Assuming time limitations | "This cannot be done in one hour." "No definitely not. I'm not sure, I don't have an idea how I would do that" (P6) |
| | | "We can complete the first ten requirements only in 40 minutes "Yeah sure" (P3) |
| | Assuming requirements as non-functional requirements | "Well, I would consider recommend sleeping habits and...workouts... along with being technically stable as non-functional requirements." "Yes, and workout planning also." (P20) |
| | | "Well, shall make the user healthy...umm...can we consider it as a non functional?" (P10) |
| | Making an immediate judgment concerning the complexity of design ideas | "These inputs, should have also the voice inputs for food, to use it for the food and the application finds the food." "It's not complicated at all." (P2) |
| | | "I think this is easy to implement on the stuff we already have so.." (P6) |
| | | "Lets have a graphical representation for calories burned over a week and month" "That would be very complex" "Forget it then" (P16) |
| Considering aesthetic qualities | Design consistency | "Here we can have a graph, that could tell the amount of workout and sleep..." "Yes, that would maintain consistency" (P9) |
| | | "The home screen should be same as the analysis show" "Yeah, the user should have the same feel" "Yeah true" (P21) |
| | Usability | "Exactly, I think this screen must be very easy and quick to use..It just can't be a massive calendar." (P12) |
| | | "We have some highest priority requirements like calculating the calories burned , date and time as well as heart rate, so we must have a shorcut option view these features on the home page" "Yes this would enable it being user-friendly" (P20) |
| | | "But, I think keep it simple, just one graph, that's it. Maybe some, maybe some text, about, good sleeping habits or something. Not to have everything empty here. And when we, keep the screens in consistency, with their look and feel, I think that will be more simple for the user" (P3) |
| | Visual aesthetics | "You will want to see like the last month or, maybe just, you could have a, and condense and expand the time period." "Fancy, man. This looks good." (P8) |
| | | "This does not look that good" "Its not messy..okay, may be change it to this...?" (P14) |
| | | "Exactly, plus over here and... So he selected, and then say plus and it will, Or maybe to, it will not be like a, job be just like a small nice-looking..items where he can just" "No, maybe it will be even prettier than this" (P8) |
| | Responsiveness | "Or you can make it like, responsiveness, more like on smaller screens to change the design, so I make it for that one." "Maybe we could make it smaller." (P5) |
| | | "Okay, our app requires to be quick" "Quick like..?" "quick as in it should respond to users quickly" (P11) |
| | | "We should have less buttons..users can interact better with the app" "May be, even the response time would less then" (P8) |
| | Stability | "It's not important to use push notifications." "Yeah, I agree with this. OK, we can go with this kind of notifications. OK, so.. technically stable, doesn't crash, I'm hoping it will not." (P3). |
| | | "I think we should have more stable app" "Like, you mean make less features here" "I dont know, but stable apps are better" (P10) |
| | | "This app will definitely be stable, haha..." "Yeah, we are not implementing much anyways" (P19) |
| Planning | Planning moves | "But if we connect the user, with the.. bracelet. And the application maybe, the application will, calculate the effort of the exercise" "But what does your bracelet give you? It gives you heart rate?" "Heart rate. It has" "It has sensors, so it knows your steps." "Yes, and temperature" "Okay let's think about this…" (P17) |
| | | "We're gonna start doing a, like a landing screen should be something like the, the three, the feature number three, which is the system shall count, calories burn during the workout. So, this may be the landing screen" (P1) |
| | | "So should we like draw.. a step-by-step, views what will happen this section what will happen in this section?" "Yes. I don't know, detail so you have to add. Do we have to draw" "Probably." "So maybe we can start with the form of enter data about him" (P4) |
| | | "How should we input that? Maybe.. hm. The basal metabolism. Well, how does one know his basal metabolism? It has to be measured." "Maybe, we can use, I don't know if, statistics, maybe if, some, maybe we should, I don't know, maybe, you can calculate it like, I don't know" "Yeah, we can go with something like that" (P3) |
| | Organizing ideas | "Yeah, but we should be.. yeah we should be creating this as a mock-up. Yeah so this." "Ah okay" "So general info, health related info how should" |
| | | "You can jump in whenever you want. Health info weight?" "Age date of birth, maybe date of birth is also important. But age, okay age weight" "Height. Medical, some medical problems, Restrictions." (P7) |
| | | "How would you do that? Where would you.. But maybe the user likes to listen.. I have an idea. Advice of the day and we have a button play. And yeah, you have it, advice of today is to listen to Mozart." (P3) |
| | | "So you have different categories and.. (break down) by category" "So like, running and then sleep and then, diet, I don't know" "Yeah, something like that" (P1) |
| | | "Yes, you can start the heart rate measurement, by pressing this, if you don't have the rapid heart rate" "We should, reorganise this. Heart rate. This should be also (good), if you have some problems, if it's always up, and you need to, I don't know, like give the advice for some different diet because of this or, some, based on your age or.." (P2) |
| | Clarifying requirements | "Analyse sleeping habits. So, about sleep. For the sleeping part, we need to use the phone sensors, I mean it has to record you while you're sleeping. If you want that kind of analysis. If you just want hours of sleep, OK, that's fine. Just input when you went to sleep and when you woke up" (P3) |
| | | "You think that diet planning is, aha so I, then I understood...diet planning is where they recommend food" (P7) |
| | | "So the system shall measure heartbeats per minute, so should the system measure like all the time or it's on like, I don't know, after waking up some analytic from that or?" "Yeah, we can do as an analysis" (P6) |
| | | "I think with.. I'm not quite sure how BMR is actually tracked heart beat, or, is it like a pressure?" "There's always, I think you can do it by sensors, actually measure, the rate, or you could do some calculations.." (P8) |
| | Considering goals | "So I believe being fit is the actual goal here?" "May be, maybe even direct a healthy life" "Let's check other in the list" (P15) |
| | | "Like the goal of the..app?" "Yes, goal. Current weight and desired weight" "Yeah desired weight" (P9) |
| | | "Then we'll need to have some kind of settings or goals" "Yeah.." (P8) |
| | | "Count the calories burn. So that might be the main goal. So the application, the main goal of the application is to.." (P1) |