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|  | **Timespan** | **Content** |
| 1 | 0:00.0 - 1:33.0 | P1: Male, P2: Female, P3: Male  ===============================================  P1: okay. so this is team ten an we now we are starting discussion about design.  P2: so for this assignment we have to do two things. make design. program.  Instructor: hello. sorry to interrupt. just want to ask you don’t have anything missing.  P1: everything is okay.  instructor: you guys recording already. just remember to do the discussion in English.  P1: okay  P2: so again. so make a design for. like interface I think. and basic structure code so we using template models. like in the book .  P1: okay. you already download template for document.  P3: I think I already open . oh no I'm not |
| 2 | 1:33.0 - 2:53.5 | P1: okay. I think that the best approach is first think a little bit about the design. the look of this program and all the requirements that it should have. just like a little bit of brainstorming  P2: yeah  P1: and then to go deep into this viewpoint.  P2: yeah. so I think we need first make the context clear. what we should we design,  P1: yeah  P2: and then the requirement .  P1: I used to play some game with a lot of road building and intersection building. so I was suggest some approaches and then you can agree or disagree . so first to implement. first the question is. we can have a double lanes or triple lanes or one lane road.  P3: it said here we have to have four way.  P1: that for intersection. but what about the lanes. four way mean you have something like this. but you can have five lanes here and five lanes here.  P2: I think it's just one lane . |
| 3 | 2:53.3 - 4:30.1 | P1: because here. it says that the student can enter the density for a lane.  P2: means how many cars on that lane.  P1: yeah. but if there is only one lane. there is no need to say in document that four lane.  P3: yeah but still density of traffic per lane is still problem.  P1: yeah. so.  P2: there are different arrangement of intersections.so I think we can make an intersection with one straight through lane and one lane for pending. I think  P1: okay. I would suggest that we go with multiple lanes option.  P2: yeah  P1: and to do something like this. so what I saw in this games it is very hard to construct the intersection. and all the logic in programming language is also hard. so they came with solution that you already have build intersection and then you just connect road into this intersection.  P3: okay.  P1: so I suggest to have different sizes of intersection. so there is one intersection type and that is this four way intersection. and then it can have the size of one lane, two lanes, three lanes, and more. |
| 4 | 4:30.1 - 6:02.4 | P1: and that will just if you say that it is one lane then you have something like this.  (drawing)  P1: yeah. and then you can go here. here or here from this lane and here here.  P3: just standard.  P2: then if you say that it is two lane that all the roads will have two lanes. but maybe we can go here in more in details. and to allow users to choose how many lanes will be here here here and here or every side of this four sides.  P2: mostly intersection is symmetrical.  P1: mostly.  P2: mostly. yeah well I think.  P1: but you can have problem that two lanes are going into one lane.  P3: yeah  P1: is that possible?  P3: yes. it's possible.  P1: is not even. is no the best intersection.  P2: not really. if he got two lanes then you always got two lanes but further in the road there go to one lane.  P3: that's right  P1: ok.  P2: if he starts at two lanes.  P3: jam would start in the intersection  P2: yeah in the intersection so.  P1: so that does not.  P2: never never happen.  P1: never happens in reality. now what about going from one lane to two lanes.  P3: that actually happens I think.  P2: in intersection. |
| 5 | 6:02.4 - 7:19.3 | P3: because there's no problem with traffic jam I think.  P2: no.  P1: but does it happen. have you seen that in reality.  P3: yeah.  P1:ok  P3: coz you can have like. you can go from lets say we have for way lanes here and more more roads here. so this one can go in this direction and this one can go on this direction and you have only.  P1: no. no I'm not asking about that.  P3: you're asking about that if.  P1: no if you came from this lane go into this and this.  P3: yes you can  P1: ok  P3: sure you can go.  P1: so it allowed to go in  P3: yeah you are allowed to do it both ways. you can go this way and this way but if someone is going from if someone is trying right from your right hand side. you have to go on your left.  P1: ok so and here is this type of line.  P3: yeah.  P1: ok |
| 6 | 7:19.3 - 9:40.6 | P1: so that it is allowed.  P3: it's allowed. this otherwise the other way around would be like he said.  P1: ok  P3: problematic.  P1: then I will suggest something like this. user first.  P2: mostly if you have this situation mostly the straight through car will only go to that lane and the other one will go there and then straight through lane and line on it I think I think you can from one lane to two it's not really.  P1: so lets then do something like this. we first start with intersection you place intersection on the map and then you can select road like a lane from a tool box and click on one side of these four sides of intersection and that you will add one more lane there and then program and the graphics will draw everything nicely.  P2: we also can do. is making a list or a  P3: predefine templates.  P2: templates where you can select all the intersection. okay you always have four way intersection. and the you get all the option okay  P1: yeah  P2: cause not clicking in the map.  P1: we can have some predefine. but you can also have like nine lanes into one lane if you want.  P2: yeah. figure you got a window open and then you say ok you have preview of the interstate here and then you have a nice option ok. lets say there are numbers on the roads side of the intersection and then you say ok I think one intersection one has option ok I've got two lanes.  P3: for each of the side have different option of many lanes there are.  P2: how many lanes and ok I've got one lane straight through one lane go left.  P1: I will not like to do that. sorry for interrupt. but you just losing time. because I will like to keep the user.  P2: more interactive  P1: yeah |
| 7 | 9:40.6 - 11:17.2 | P1: so when he places the roads or just he can have this. the lane the road one will have two lanes and stuff like that. but then when you have all really construct that thing like something like this. and here on the two lane and here on the two lanes and here a lots of lanes. then you have a tool connect and then you say ok this one this connected to this. that means that here is then draw arrow and all the cars are in this lane are going only to this lane.  P2: yeah.  P1: and this one is connected to lets say this and this and this. and then you have another type of arrow here. and you somehow construct the rules for every single lane. which lane is connected and then you can and then you have this. how to say it. this rules then control your system and then when you try to add one more lane to go into this lane it. it would say no that it's not possible you have already had other lane connected to this one. you want to delete previous road or not.  P3: yeah.  P2: .yeah it should be easier to yeah for the individual single for traffic light.  P1: so you can construct anything and then when he starts the simulation. he can the student can see if a there would immediate jam like traffic jam or everything will go nice. |
| 8 | 11:17.2 - 11:26.5 | P1: so I suggest that type of construction.  P2: yeah.  P3:ok.  P1: then. then every lane have a traffic light.  P1: yeah. every intersection but she can do multiple intersections. so I think we have if he have to view in here that she have drag and drop options above it for intersection roads cause she needs to connect those roads.  P1: yeah. |
| 9 | 11:24.8 - 12:03.6 | P2: it's a compass. its a compass  P3: okay |
| 10 | 12:03.5 - 13:39.5 | P2: usually like this right or not I have no idea.  P1: yeah. north south.  P2: north south  P1: yeah. well you have a big map so you can put intersection anywhere  P2: yeah  P1: and then you can select a road from your roads toolbar and then you can connect different intersections. and let say that you have on yeah you have only a possibility too. yeah ok. so when you construct the other intersection you have option to connect them lets say connect click click two clicks and then program determine if here we have four lanes in one direction four lanes in the other direction. and here the other intersections have two lanes and two lanes. the program will squeeze these four lanes into two lanes. programmatically it like.  P3: or we can go further and let the users decide where the lanes will join together. cause if you have a traffic jam is better to extend this four lanes as much as possible.  P1: yeah.  P3: so there more cars will fit in there. |
| 11 | 13:39.5 - 14:16.7 | P1: ok. so we can have first what do you think about this? first the program calculate this intersection and then this intersection this connections  P3: joint  P1: joint. are clickable. so you can click it and drag it on the road and then choose where it should be placed.  P3: joint part would be  P1: yeah.  P2: they click it on the road and then you can say ok this is so long this is so so long.  P3: yeah can you also do that.  P2: because you need to know the  P3: actual distance  P2: actual distance of the road.  P1: yeah. yeah it's true.  P2: ok.  P3: ok. |
| 12 | 14:16.7 - 15:03.7 | P1: and there will be also some major measurement like on side of your drawing panel. so you can also see where you placing the other intersection.  P2: yeah.  P3: ok. and then we have traffic lights.  P3: all the traffic lights should probably condition by this factor where you connected the roads.  P2: yeah.  P1: yeah  P3: so each each of this arrow will actually determine what kind of traffic light light is there.  P1: yeah.  P3: and then.  P2: maybe you want just generalize above it.  P1: every road will have. every lane will have it's own traffic light? yeah. |
| 13 | 15:03.7 - 15:41.0 | P2: yeah. but you can also have general just one round light instead an arrow and then you go straight through in all directions.  P1: so lets then say that every lane have its own traffic lights and then you can connect this traffic lights so they can go together into the green and the red or they can go in different in styles.  P2: yeah.  P3: yeah depending on this sensors that mentioned somewhere  P1: yeah you can put also sensors.  P2: yeah. here. first one |
| 14 | 15:40.9 - 16:13.1 | P1: ok so in these games I played you have different layers. like you have layer for electricity layer for water layer for this construction. so I suggest to have one layer for traffic lights. so that you do not need to look at these roads. you see only a structure and then traffic lights are color lets say in some different color and then you can drag these connections between them. you understand?  P3: yeah. I know what you mean. |
| 15 | 16:13.2 - 17:13.8 | P1: because if you look at that with the global overview of this grey roads and green grass around and stuff like that. it is hard for you to see a little traffic light there.  P2: yeah. but maybe you can. if you have a road in here you can have traffic lights like this.  P1: yeah.  P2: so it is little bit big screen so you can make.  P1: yeah you can also zoom.  P2: if you want to put a traffic light on it you the computer will in will zoom in into the intersection and then you have big have graphical image of it and then you can see the lights.  P1: yeah. and then you can also change the type of the traffic lights.  P2: yeah.  P1: or add another traffic light on it like the red arrow left or.  P2: yeah.  P1: ok |
| 16 | 17:13.8 - 18:09.6 | P2: I think that a nice visualization of it?  P1: and then we can also have a tool that is tool to connecting traffic lights and when you click on this and this. traffic lights they will connect and then you can choose what type of connection is that. you can choose to you know you can design the rule of this traffic lights and the rule is to have 20 seconds green and then 40 seconds right lets say.  P3:ok.  P1: and this two traffic lights are connected and that rule between them have same behavior then all traffic lights that are connected to this one will take it own rule and you don’t need to if you have nine lanes. you don’t need to  P3: set for everyone. nice. |
| 17 | 18:09.6 - 19:01.8 | P1: and if you change one all the others will change and you can also put conditions like if this one 20 seconds the other one will be 10 seconds more or if this one is red the other one is green. stuff like that and that you prevent all the crashes and stuff like that.  P3: yeah.  P2: yeah. that is the biggest issue. not not building the road but connecting the lights and make sure that they do the best behaviors.  P1: ok so should we write this requirements somewhere. can I get one on fresh paper |
| 18 | 19:01.8 - 19:50.5 | P1: ok. so we have intersections. few predefine and extra option. to add lets call them in lanes and out lanes. the in lanes is one that is guiding you into the intersection and the out lanes is one that is guiding you out from the intersection.  P2: okay  P1: in lanes and out lanes. |
| 19 | 19:50.6 - 22:02.4 | P1: all intersections are four four way intersection. ok. and then for this intersections at least have a tool to connect lengths. ok. lane connecting tool.  (drawing)  P1: so click on one lane and click on other. yeah. you should click on in lane and click on out lane. ok. traffic will follow connection. rule traffic follow connection rule from in lane. from click in lane to click out lane. ok. that is lane connection.  P3: traffic light.  P1: yeah and we also have if user tries to create rule that is colliding with other rule. he is not define. ok. display notification if rules are contradiction .ok. these are lanes and intersections.  P3: okay  P1: then we have our traffic light. |
| 20 | 22:02.4 - 22:45.9 | P3: we will have to play with this card.  P2: yeah  P1: yeah but should be played with that now or after?  P2: yeah 15 minutes.  P3: lets do this first.  P2: yeah.  P3: coz otherwise we'll forget. I just remember about this coz.  P2: yeah.  P1: ok. so traffic light every lane and has its own traffic light? presented as normal traffic light draw the length.  P2: yeah. |
| 21 | 22:45.9 - 24:04.7 | P1: normal we call.  (drawing)  P1: we will have a different layout or different view of traffic lights. ok. that is what I said that you need to. when you click traffic lights. the screen will go lets say black and you will see only purple traffic lights on each lane and green lane. so it's easier for you to focus only on this. you understand? you know when I draw the architecture for home you have like a home.  P2: yeah.  P1: and then you have a blue lines that are for water and you have a yellow lines that present electricity. and stuff like that. that is what I think. you understand.  P2: I think. if you take on a highlight on traffic light that is just highlight that is so make loser going on it or something.  P1: yeah. that's also. can you. can it's really great because I'm preventing into YouTube |
| 22 | 24:03.7 - 25:29.1 | P1: ok can also go and just write city skylines. city skylines. yeah. and then select one  (watching video)  P1: ok this is good. ok and see now. ok this is the general view and now he went of. he went to the water the water placement view and then you see only everything is grey and then you can see only this what is matters for you for that view and that is that are the water connection and the water and then further and then again this normal view and now he went to the electricity view and then everything is grey but the electricity lines and stuff like that. |
| 23 | 25:29.1 - 26:32.5 | P2: yeah. but I think we can make a real basic view of all lanes so. ok only lanes are grey with stripes on it and the rest is green.  P1: yeah. but then I suggested to if you go to the traffic light view and everything goes grey like this and then you can see only this elements that are. that are.  P3: important  P1: important for the traffic light. because when you. lets see places this connections you have six plains on every side and then you connect all these lights between themselves.  P2: yeah I know that.  P1: and you keep on one light. you want to see clearly where these connections are going and when you have connections and all white lines on the roads and all roads and then it's hard for you see  P2: I get your point  P1: yeah  P3: sure. |
| 24 | 26:32.5 - 28:05.5 | (drawing).  P2: it made a little more force ok.  P1: ok so.  P2: yeah I get you for viewpoint now.  P1: we will have separate view for traffic light system and then we have again this connection tool. traffic light connection tool. connecting tool. that works if you click on one light and the other light. you click. lets say. yeah.  P2: I think he needs to make like ok if you have one ribbon of building roads and traffic lights. so if you in the building roads mode then you only see on the side and then you can. I think that's on the side if you go two ribbons and you upside ribbon. you have the different connect so connect roads that kind of option I think. |
| 25 | 28:05.5 - 29:01.8 | P1: yeah so everything that matters for all. that matters.  P2: so I think this is building.  (drawing)  P2: wow. and this connecting and.  P3: ok. we could just change this one  P1: yeah  P3: when change the view.  P2: yeah  P3: with can just change this one and.  P2: yeah so when you're in a building and a road building view. then you can see all the different roads in here. so one lane two lanes and intersection.  P1: and your in traffic  P2: and when you in traffic you see the different of traffic lights.so ok only straight through go on left go on right go on great.  P3: right great cool. |
| 26 | 29:01.8 - 29:54.1 | P1: ok so we now have the traffic light connecting tool and you can click on one light and the other light and define the rule for this.  P2: yeah. and the rules come pop up in a separate window I think.  P1: yeah. yeah when the second one then you have pop up or something like that and then you define what to do and rules can be like act in the same way. turn on when light one goes off and ok these are the traffic lights and these rules. |
| 27 | 29:54.1 - 30:23.3 | P1: ok. and they can also connect these two like into lanes and traffic lights. so when you connect lets say this lane and this lane. then traffic light can also change its behavior to only the red arrow.  P2: yeah.  P1: because. it's.  P2: I think it's really a good time for us to play our cards.  P3: yeah |
| 28 | 30:23.3 - 30:50.5 | P2: coz we have a lots of perfect constraints in here.  P1: like ok can you log the should play the constrains.  P2: yeah I think we need first do something about three.  P3: yeah definitely.  P1: ok so we have solution.  P2: we have solution and now we have constraints. and we would log it ok. what time. |
| 29 | 30:50.5 - 31:23.0 | P3: so it's . thirty sixty seven something.  P1: thirty sixty seven  P3:: minutes sixty seven. fifty seven.  P1: okay. it's thirty one minutes.  P3: yeah fifty seven.  P1: can you write the initials because then we can see what we played and who played it. |
| 30 | 31:23.0 - 31:46.4 | P1: I. can you write here I, and write your. it's I like . yeah. okay |
| 31 | 31:46.4 - 32:05.8 | P3: so our solution is the different views. each for one for road building one for traffic light assignment. okay. what are the constraints now. |
| 32 | 32:05.8 - 32:58.0 | P1: I agree with that solution.  P2: we've got two views.  (drawing)  P2: okay the constraints are for roads. lets think about that. well every roads need to connect to something.  P1: yeah.  P2: so we can have roads that just end in the intersection. |
| 33 | 32:58.0 - 34:07.9 | P2: so we have to build a test or something that roads .  P1: can we have the solution.  P2: you already in the solution.  P1: can I.  P2: yeah sure.  P1: I don't understand this dot.  P2: just played.  P1: okay. I am playing the card solution. so the final thing that we want to do with this program is to run the simulation.  P2: yes.  P1: so when you click run simulation . it will attract all this constraints and all the rules. and program will say to you. now you cannot run simulation because this road ends now where you need to connect it to something . I think that is like the elegant solution to and it can also be like red all the time or have the red border because it's time is thirty three fifty seven. because it is not connected so I don't think.  P3: yeah.  P1: okay. |
| 34 | 34:07.9 - 34:27.2 | P2: so attract all rules, when you.  P1: start the simulation.  P2: start simulation. yeah.  P1: and do not start simulation if something is wrong.  P2: yeah.  P1: okay |
| 35 | 34:27.2 - 34:39.2 | P3: okay.  P1: what about the other constraints.  P2: there are several more constraints I think. are you wanna play card?. |
| 36 | 34:39.2 - 36:10.6 | P3: there's some assumptions that we made and that is the students will actually know what to build how to use this thing. what . how to connect the intersection. how to connect the traffic light and everything.  P1: yeah  P3: so we something has to be done about that. and what I suggest is maybe make tutorial for them.  P1: I agree.  P3: yeah so we actually gamification. we could do some sort of gamification approach. everything.  P1: I agree.  P3: coz if you look at this thing you probably never what guess to do.  P1: yeah. it can be like video tutorial and it also be like in games .  P3: yeah in games tutorial.  P1: all this pop up that showing you what to do.  P2: or maybe just quick tour on the program it should be easy to .  P3: well it's not that complex program so. I think if we just made up.  P2: just make pop up some. okay hey connect this and this road to this.  P3: yeah. something like that.  P2: and then I think it's pretty self explaining how you connect all the roads.  P1: nice |
| 37 | 36:10.6 - 37:24.3 | (writing)  P2: yes go for it.  P3: thank you.  P1: so should we clean the table now. should we remove the card or .  P3: did you write.  P2: yeah. not the last one . not the.  P3: that doesn't matter.  P1: so did we finish this  P3: we can still (inaudible).  P1: okay so now you need to write the time when we remove all cards.  P3: I don't think it matters the whole point is.  P1: time stamp of removal.  P3: oh.  P1: thirty seven and ten. for all the cards. |
| 38 | 37:24.3 - 38:07.1 | P2: yeah.  P1: so we have assumptions so we have constraints and solution as well.  P2: yeah.  P1: ok so now we have some more stuffs to review and that is the intersection connecting connection of the intersections.  P2: yeah I think that's a nice problem.  P1: yeah. but if it is a problem and we have a solution.  P2: time  P3: thirty seven fifty seven.  P2: ok.  P1: can you write to me also you want you for problem and me for a solution.  P2: yeah. |
| 39 | 38:07.1 - 38:18.7 | P1: ok so.  P2: ok the problem was.  P1: how to connecting intersection.  P2: how to connecting intersection. |
| 40 | 38:18.7 - 39:03.2 | P2: and the solution was.  P1: so now again we have this approach of connection tool.  P2: yeah connection tool.  P1: this is the intersection connecting tool and then you click again on the first intersection and then on the first lane. like not lane. but a arc is that the right.  P2: one side of the intersection.  P1: yeah you click on the one side of the intersection and then the other side the other intersection. and then  P2: I think we need to connect lanes. |
| 41 | 39:03.2 - 39:37.5 | P1: yeah this is the what we are draw you click on this and you click on this and then the program calculates everything and then you can drag this drawing shape in the joint.  P2: connecting intersection. different intersection or.  P1: different intersection.  P3: any intersection I think.  P1: yeah  P2: or was more like ok one side of the intersection are also in the intersection.  P1: no no. that was the light.  P2: but you want to. yeah.  P1: that was the link connecting.  P2: ok |
| 42 | 39:37.5 - 40:37.2 | P3: yeah now we have two  P2: now we have two intersections then. we have to know. well I think that's most be built by roads so you track a road on it.  P3:yeah just track a road and that's it and then program calculates the if there are any joints that's it.  P1: I don't understand  P2: I think you begin with tracking a piece of road on a on map and then you click on the road and say ok this needs to be this distance and so many lanes and then when that piece of road ends and you say ok we need an intersection and then you drag an intersection to it and from there when you make the intersection and you can see ok I got a nice I want to go further so you drag a piece of road again to the map and then you guess say ok I want this again and then you say again ok I need an intersection. |
| 43 | 40:37.2 - 41:03.2 | P1: ok. I want  P2: so you start one point and then you can say ok just drag a things on it.  P1: ok.  P2: it's not really connecting just put in a piece of paper just like a Visio. then you drag connector line and that's basically the road you track into it. |
| 44 | 41:03.2 - 42:05.2 | P3: avoid  P1: yeah I want to avoid this road drawing because it is really hard problem. we had one lecture on that and there is whole bunch of mathematics behind the road drawing. and when to have and I also had an opportunity three years ago to work on traffic simulation program.  P2:ok I understand.  P1: and I think is that when you have a road and you have road like this. then you need to have a similar arc in the other side if we want to go from this curve into the straight road and there bunch of mathematics and lanes and stuff you need to calculate so car can act and the driver can naturally  P2: ok.  P1: and if you want to have good simulation. it needs to be calculate the by the computer. you know. |
| 45 | 42:05.2 - 42:31.7 | P2: ok but you can make a curve line road  P1: yeah  P2: and then you can specify well calculates how the road will end up  P1: yeah and that is what I told to this because at the end.  P2: you just you drag the roads on to the map and then computer calculates the curve line. |
| 46 | 42:31.7 - 43:05.6 | P1: yeah but it needs the other answer so we can calculate. so if you connect. if you connect. lets say this and this. ok.  P2: yeah.  P1: then the program will calculate something like this. ok. just normal straight curve. normal curve but if you connect.  P2: yeah but what if now ok you have straight line and then you say I want a curve on it and then go straight again without an intersection. |
| 47 | 43:05.6 - 43:35.9 | P2: you can. the program can calculate the optimal  P1: yeah  P2: the curve line then the minimal curve line. so you can I think you can put a road in it and then you can track one side of it a little bit and then the computer calculates ok this is ok this is not ok and then you go back.  P1: ok I understand yeah. |
| 48 | 43:35.9 - 44:02.0 | P2: I think that's nice visualization  P1: ok. and then when we do this so you approach is this. you write you draw a road and then draw some intersection.  P2: yeah.  P1: ok and if you want to connect lets say this already build intersection and this. lets say this two and then you just also click here and draw the road and then connect to this.  P2: yeah.  P1: yeah ok. |
| 49 | 44:02.0 - 44:30.1 | P2: so then basically ok if we have road here and then more nice dragging point and now you can click a mouse on it and then you can connect ok if you have here an intersection and then you say ok we drag here and then pull light off.  P1: ok ok I agree with that. ok. |
| 50 | 44:30.1 - 45:07.5 | P1: should this still have this automatic joint calculation rule?  P3: yeah of course.  P2: yeah. yeah.  P1: ok.  P3: that should be included here.  P2: otherwise you have to go really in here.  P1: so we have intersections connecting with a road.  P2: yeah. so you the drag to the preference point. |
| 51 | 45:07.5 - 45:22.4 | (drawing)  P2: and then the complete all calculate the optimum.  (drawing) |
| 52 | 45:22.4 - 46:29.9 | P1: you know what. now when I'm thinking. about that I think that I'm wrong because it is true that you need to have optimal curves for the best flow. but many cities do not have that and maybe they want to lets say test if their city has good roads and if not how to  P3: improve that  P1: improve that. so maybe we actually do not need to calculate that optimal curves. but if user want to have like really really lets say.  P3: or we can just add an option to that building tool whatever the computer can calculate optimal road.  P1: yeah.  P3: and otherwise it depends on the.  P1: so that is optional.  P3: yeah.  P1: ok optional automatic calculation. |
| 53 | 46:29.9 - 47:01.1 | P1: and then we have also the automatic calculation of joint of roads. if four lanes four out lanes are going into two in lanes then the joint will be constructed and user has an option to drag this joint  P3: the placement of the joint  P1: yeah  P3: that's it. |
| 54 | 47:01.1 - 47:42.3 | (drawing)  P2: ok what do we also need to think about this is ok speed limit.  P3: oh the whole traffic simulation  P2: the whole traffic simulation  P3: that's the next biggest point I guess.  P1: yeah.  P3: coz now we have road connected  P1: yes so we need like traffic.  P2: I think we have a problem again.  P1: lets remove this cards. so cards are removed.  P3: at forty seven thirty seven yeah.  P2: so only nice cards at forty seven now. |
| 55 | 47:42.3 - 48:20.8 | P3: yeah.  P2: ok the problem is. information.  P1: like traffic density.  P2: traffic density.  P3: traffic simulation is.  P1: traffic simulation yeah.  P2: yeah so this is nice for the information view.  P3: yeah. |
| 56 | 48:20.8 - 49:14.9 | P3: this all.  P2: ok because the information we need is traffic density.  P1: yeah.  P2: speed limit and the.  P3: duration  P1: if users can change the lane maybe. like if he have full lane then he can not change from one lane to other lane. and if he has the (inaudible) lane then you can change from one lane to other lane.  P2:yeah.  P3: that's part of the at whole these things.  P2: yeah maybe just a little bit out of our assignment.  P1: no that's the simulation. ok.  P3: oh maybe I don’t understand you correctly. what did you mean? |
| 57 | 49:14.9 - 50:18.3 | P2: well if you on road in two lane road then you can switch lanes.  P1: yeah.  P2: those things.  P3: ok.  P1: it's simulation. but we can also we can stick on one lane and that's it.  P2: yeah.  P3: no I don’t think that's that's important because everything is just based on some distributions it doesn't matter if well every rule will be incorporated in this system so intersections traffic lights and roads and rules like changing lanes will be incorporated in this but for the traffic simulation it doesn't matter if one particular car changes lane or when is it because everything will be should be generated automatically based on some random factor.  P1: that's true but if you lets say we you have a complex network of a road and intersection and then you determine that sources at the left corner.  P3: ok |
| 58 | 50:18.3 - 50:52.8 | P1: and then you provide some source of cars and cars start drive to the first to the first intersection and then forward and then you got the jammed on the right lane  P3: okay  P1: and then because there is no rule that cars can switch lanes. you have like a normal jammed on one lane and you have completely free other lane.  P3: yeah but these rules for the in here. oh you mean for oh I see what I mean.  P1: you know if you see a complete jam in one lane then you will switch lane and drive forward. |
| 59 | 50:52.8 - 51:28.3 | P3: yeah but that's ok.  P2: I think that's a simulation problem  P3: yeah  P2: and I don't know if we really need to looking to that now. I think most a most basic for us more like ok when you need to design traffic light and not real simulation on it I think.  P1: ok.  P2: so lets focus little bit more on the lights and little bit less on the traffic and how it responses to everything.  P1: ok. |
| 60 | 51:27.5 - 51:57.6 | P3: yeah so we should actually have an option for sources. traffic sources like he said and he chose this traffic sources sources should be configured both by some distribution or how long it will emit traffic or something like that. |
| 61 | 51:57.6 - 52:26.5 | P1: yeah the distribution actually the density they remind the.  P3: yeah the.  P1: and the it's written that every lane should have option to. students should be able to change the traffic density. that enter the map on the given road so enter the map so source.  P3: yeah.  P1: we need to have some lets say circle that you place on the road and that is the source of traffic.  P3: yeah. |
| 62 | 52:26.5 - 53:09.9 | P2: but I think you have multiple for sources. if you have multiple for everything in the map.  P1: of course.  P2: ok so we have.  (drawing)  P1: and then we need to.  P2: so from there we can say ok this is high density road density road so.  P1: yeah there should be some tool  P2: and nice yeah ok if you click on the source as well then you see nice scale ok this is real dense and.  P1: yeah  P3: yeah |
| 63 | 53:09.9 - 53:44.3 | P1: ok. so you place source on every lane and every in lane.  P3: no where ever you want. where ever this are.  P1: on any in there.  P3: yeah.  P1: ok.  P2: or the end of the map.  P3: yeah ok.  P1: ok  P2: so lets say ok you have one intersection real basic then you have four source points.  P1: yeah. |
| 64 | 53:44.3 - 54:13.5 | P3: well now well do you mean that this center this source point should be connected to the intersection like by default.  P2: well if he ever real big road. ok well we have an intersection here.  P3: you can just draw a straight line.  P2: there's a nice intersection here.  P3: ok  (drawing) |
| 65 | 54:13.5 - 54:53.8 | P3: so on the end of the map. I think that's.  P2: so here is a source go. coz here is one here is one here is one here is one and the end of the maps. ok when ever it there isn't there isn't road then you have source point. coz the cars need to go.  P3: ok the only thing that I think we should all should also do is that this source point should be which be able to delete them.  P1: I'm actually. I agree with that and by default their stratum zero and then you can.  P3: ok yeah or this that's the solution  P1: and then you will remove all these. |
| 66 | 54:53.8 - 55:34.9 | P3: so you have the option to turn of the traffic if you want to.  P1: ok. then  P3: ok so did we say about anything about the configuration of this source points what these are can specify.  P2: ok. so the skill density.  P3:so yeah.  P2: interval  P3: the intervals  P2: isn't that  P3: or maybe this start end point or the time which its source point should emit traffic or something like that. |
| 67 | 55:34.9 - 56:17.5 | P2: density is kind like. ok we have so many cars and they go at this interval  P3: yeah.  P1: ok so we have density. interval and also the lets say in quotation marks marks direction or the brain of these drivers. so should they spread randomly or has some common direction and lets say there is only option for one direction or you can just say that there is option to make a direction and that's it we are architecture designers and we are not programmers.  P2: yeah. |
| 68 | 56:17.5 - 56:49.3 | P3: coz otherwise this would get complicated. ok  P1: so you can simulate some parades or a work rush hours stuff like that.  P2: I think we basically ok and the system gets information and just ok the cars get they give information to the system and the so the cars have the information ok they go to this point go to that point. |
| 69 | 56:49.3 - 57:15.5 | P3: well yeah coz otherwise.  P2: so that we don't have to think about that.  P3: yeah we don't have to specify by our self or something like that. lets just say that the cars should go to some other point at traffic lights.  P2: the cars know where they have to go. they only did the source only says ok this is density and the car itself that student can't do anything about it.  P1: yeah.  P2: they don't know the direction. |
| 70 | 57:15.5 - 57:24.2 | P1: can specify the driver behavior lets say.  P2: yeah.  P1: ok.  P2: ok.  P3: ok  P1: so interval density and driver behavior. |
| 71 | 57:25.0 - 57:35.4 | P3: yeah. and the distribution of .  P1: that's like density.  P3: that's not density. |
| 72 | 57:35.4 - 58:28.7 | P1: okay.  P2: density is all. why if I think about density then I think about okay the routes.  P3: how many cars.  P2: how many cars and then the interval that just one thing.  P3: yeah.  P2: so I think it's only density and it's then over. so if you have a scale from one to hundred then okay. if it is one then say every ten seconds a car will come if density is hundred then every seconds or something. density interval .  P3: okay  P2: so you've only one scale of density. and density will. determine the interval. |
| 73 | 58:28.7 - 59:05.6 | P1: okay. only you should have an option to set an interval how long cars will come. so you can measure how long you need to empty all the street or all the intersection. otherwise you.  P3: if you set the source to emit car every second then there will be a constant in flux of cars.  P2:yeah.  P3: and that. you don't want to do that. coz you wanna measure also the times when no cars would come.  P1: okay. |
| 74 | 59:05.6 - 59:22.4 | P1: so. should we remove this problem card.  P3: yeah.  P1: fifty nine thirteen fourteen.  P3: yeah |
| 75 | 59:22.4 - 59:59.5 | P3: the only think is left how to  P1: should be here.  P2: okay. so.  (drawing).  P3: how to visualize cars.  P2: I think just like okay just real basic.  P3: just dot .  P1: yeah.  P2: or maybe.  P3: coz there should be some. so each car should be represented as something.  P2: I think this is a nice car.  P1: I think that's dot are good enough. yeah |
| 76 | 59:59.5 - 1:02:05.5 | P1: because in the simulation you do not need to see. you only want to see how traffic .  P2: yeah it's a nice visualization.  P1: yeah  P2: I wants something too.  P1: okay.  P3: I get it.  P2: just basic top view of everything real simple just okay to be and minor details.  P1: I see only one problem. right. and I'm  P3: sixty thirty six  P1: and I'm proposing solution.  P3: so what's the problem first.  P1: first the problem is that as I said when we're talking about traffic every car. every driver should have it's own logic like that should be program. that's like driving and considering the speed limit and stopping when it's red. and going forward when it's green. and following all this rules. so in programming language if we present like one node or one class. car or driver and the so that's the problem and the solution is. to have a separate class for every driver. so when you're popping this cars . so popping this. instance of class.  P3: yeah.  P1: when you popping this cars into the map then you creating instances and it has it's own logic.  P3: and some direction which should be.  P2: isn't that a little bit too specific on map programing.  P1: no. that is like really important thing. I will not go into the logic because there we can say.  P2: ok yeah.  P1: logic about traffic lights and logic that do not turn left in there is jam and stuff like that. we would not go there. we'll just say every car has it's own logic. |
| 77 | 1:02:05.5 - 1:02:26.3 | P1: car logic. that's it. and now we can remove this. it's one hour and two minutes and twenty seconds. |
| 78 | 1:02:26.3 - 1:03:46.8 | (writing).  P1: do we have anything else.  P2: I think we need to look into a little bit more of the constraints . okay so you have one of the requirements student must be able to create visual map. okay so we have road building. and how we can connect those.  P3: yeah  P2: and okay. point two students must be able to describe the behavior of the traffic light. okay. lets go into that. okay. if you click on the traffic light then you get another pop up when you can set the variety of sequence and time schemes.  P3: okay yeah.  P1: and we can also add a sensor. that can read if there are any cars on lane.  P3: yeah that's what I think.  P1: and then connect this two.  P2: true. a nice problem card. |
| 79 | 1:03:46.8 - 1:07:44.9 | P2: okay. it's like.  (writing).  P1: so the problem is.  P2: okay the problem is. how we program the traffic light basically.  P3: oh setting you mean.  P1: how we control yeah.  P2: yeah setting. program settings.  (writing).  P2: so we need for that. we need a variety of sequence. timing schemes. and sensor.  P1: yeah.  P2: and I think the sensor also need to be in the building traffic things.  P1: yes  P2: building roads.  P1: so can I suggest one solution for sensor.  P3: sixty four fifty seven.  P1: so as we have this traffic lights buildings as you said. we should also have sensor there and as we had this overview like the special layer for traffic light when you add a sensor that would be also one object on map. and then you can use the same connection tools.  P2: yeah. but I think it's also the traffic light is connected to a lane. and sensor connected to lane and should be automatically generated that link. so the sensor is linked to the traffic light. you don't have to connect those two.  P1: that's true but you can also connect sensor from one lane to traffic light another lane.  P3: no. that's point.  P1: you can do that.  P3: yeah but.  P2: yeah but. okay like you have two lanes for straight through and one lane is empty and the other lane is not. then both traffic light go. but if connect those well I think that's the problem or.  P1: well let say if you have two traffic lights you have two lanes for straight as you said.  P2: yeah.  P1: and you have two traffic light above this lanes yes.  P2: yeah.  P1: and is are connected by road.  P2: yeah.  P1: so have master traffic light and say the slave okay. and then we have two sensors. and this traffic light which is the master is connected to the slave by the road.  P2: so if one standing there the other one is also.  P1: yeah slave act.  P2: I don't think need slave and is more like okay this two are just one head traffic light.  P1: but you have rule between them .  P2: yeah.  P1: that this one will act the same as this one.  P2: yeah this one act same as that one.  P1: but that add additional complexity. because you can also have a rule that this one is ten seconds less than this one. then you will also have this one is the same.  P2: but that's not really logical if you have one.  P1: you can count. let say if this one is red this one is green that's one type of rule we can have okay.  P2: yeah  P1: and then.  P2: I guess if you go.  P1: this must be in one direction.  P2: I get your point. only traffic light go with ten seconds interval if this traffic light goes right. |
| 80 | 1:07:44.9 - 1:09:36.0 | P2: that the only thing I can think about why you have delay between the two.  P1: that just forget about that. let say the rule is if left one is red the right one should be green. That’s the rule okay. so this one the right one acts behaves considering the state of the left one  P2: yeah  P1: okay. and every thing you need to set up is the left one. and the you set the left one and the right one will behave considering the left part. okay.  P2: yeah  P1: and then you have two sensors. okay. and this rule is one directional so you set up this one and just listen to the rule. then we have this both are for straight for straight and then you have again the same rule. but now you have the rule and now the rule is act same as your master who provided you the rule. okay.  P2: yeah.  P1: so if this one is green this one will be green. that's the rule again and you have two sensors. and master is one who determines all the logic how traffic will go. this one just copying him. and master need to consult sensor so he can decide what to do.  P2: yeah  P1: and because he is conducting how this one the right one will behave. he also need to conduct the other sensor  P2: yeah  P1: and that is the case when you need to connect the right sensor to the left sensor. |
| 81 | 1:09:36.0 - 1:10:36.4 | P2: I think is easy.  P3: the only point is.  P2: you connect this and you have.  P3: the one thing that your missing here is that this sensor are not related to this lane.  P1: yes they are.  P3: no their not. coz this sensor measure how much traffic there is right.  P1: on that lane.  P3: well.  P2: the sensor measure if some in the lane . so the traffic lane.  P3: but they wont like. it doesn't matter if there is a lot of traffic here. there also traffic in this lane and the perpendicular lane. coz they can't open the traffic light if there is still traffic so this sensor or this traffic light have to be connected to this sensor.  P1: yeah of course.  P2: yeah.  P3: so to average sensor .  P1: of course. and that is the reason why you need to connect sensor from one lane to the traffic light of another lane. |
| 82 | 1:10:36.4 - 1:11:33.2 | P3: well.  P2: I think we need to connect the traffic light instead of sensors. the sensor always say okay sensor would signal. okay I've got traffic one may lane. then the traffic okay good.  P3: the thing is the sensor should now connected to traffic light at all it should be connected to some central unit.  P2: yeah. central unit.  P3: and then central unit say what ever it says. coz otherwise each of this.  P1: and how then you make a rule like in you are student you are looking at the map. and you want to make a rule that this one this lane opens if everything is clear and this two lanes are have some traffic on it. how you create that rule. |
| 83 | 1:11:29.2 - 1:11:57.9 | P2: first you check if there is something on the . if there car on sensor.  P1: yeah. but I'm asking you have a mouse. you have a map in front if you. how create this rule. now you are a user.  P2: okay  P1: what is the most logic way for you to do that.  P3: okay. |
| 84 | 1:11:57.9 - 1:12:47.6 | P1: for me is to connect the sensor to some light that act in some way. considering.  P3: but then you have to connect every sensor to every light.  P1: maybe. maybe not.  P3: maybe yes.  P1: you can connect you can okay. you can have an option to make group of sensor that connect to light.  P2: you connect the sensor to the light. and light would check all the rules okay. so the rule. rule is okay. you depend on this and this depend on everything else. so the light basically determine okay I can go green or I can go not green . I can go red. |
| 85 | 1:12:47.6 - 1:13:38.4 | P3: well.  P1: maybe that is too much in depth I don't know.  P3: yeah. would definitely.  P2: better constraint the light wouldn't have. okay. the light have constraint okay they can go both green at the same time if there is. if there is traffic on it. coz you have four way lane and if you go okay. if you go green and straight green, and this one is straight green that one. you can't coz you cause collision. so you need to check first. okay. one is. this one wanna gonna green he has to check if everything else is red. when he . otherwise it will collide with something. |
| 86 | 1:13:38.4 - 1:15:29.1 | P3: okay. I think we are going.  P2: sensor is just basically saying okay I've got traffic on it. okay. and now I want to go green can I do that. and then the traffic light will see it . okay and I see that the other one is green now you can't go yet. but he will send signal to the other traffic lights . okay I want to go green. so just put the timer on it and then you go red. and then he can go green.  P3: I think we have the different in this. coz since this thing actually exist. I believe there are some algorithm that would solve this problem. and I don't think that this is actually the thing that we should discuss now.  P1: okay.  P3: coz let say that there is an algorithm.  P2: this actually the assignment. okay. students need to go.  P3: look at the student have traffic simulation program , and it doesn't matter how this . how the green light will be calculated. they just have to assign rules. and that is. let say that there is some algorithm that will provide us with this. but wouldn't know which one it is.  P1: okay. so can we then keep it enough simplicity clear. and say that as every other thing in our system is connected by some rule. also this sensor should be connected by some rule. and then that can also be some algorithm or something students will use. and calculate everything. |
| 87 | 1:15:29.1 - 1:15:36.9 | P1: do not comment. because. then she really transcribe it. |
| 88 | 1:15:36.9 - 1:16:38.8 | P1: okay.  P2: I think the basic assignment for this is okay. student need to set the time of each traffic light so.  P3: yeah. let just say student can put some sensors in it. and the sensors will communicate to some except one central unit or what ever and that central unit will decide when to open the traffic light. and for each of this traffic light the user can determine if it's connected to something else or whatever but we don't need to know what algorithm it is. let just say.  P2: oh basically we just have the class of all the rules in it.  P3: yes. and there is some algorithm that will determine when to open some lights and how to determine if the rules are contradictory or something like that.  P2: yeah.  P3: coz otherwise we can discuss this thing. |
| 89 | 1:16:38.8 - 1:18:34.5 | P1: this are good.  P2: I know.  P3: okay.  P2: we also need to create some viewpoints.  P1: yeah.  P3: well the functionality viewpoint is almost done.  P2: yeah.  P3: except we have to create.  P2: yeah.  P1: so should we. here is written that two hours we have designing and forty five minutes making documentation. so the actual drawing was this of this model.  P2: yes do it in an hour and half .  P1: and then all the.  P3: but we already. we just have to write it down. we already make some.  P2: we have this we already have. nice time for.  P1: I think we also have the context and the functional. everything so.  P2: so we're looking to little bit of the context view.  P1: what.  P2: I just drawing it.  P1: so suggesting to start drawing the context now.  P2: yeah. so we have the. okay. which view point. from user. so looking to the user. so the students. see the system.  P3: okay.  (drawing). |
| 90 | 1:18:34.5 - 1:18:47.4 | P1: so student can. first. student can add intersection. |
| 91 | 1:18:45.7 - 1:20:48.5 | P3: I don't think we should because. oh that's only the functionality.  P2: yeah. context is (inaudible) how it interact with it. so we have the system. and the system interact with system to use I think for traffic simulation. and.  P3: oh. well this is traffic simulation. let say some. oh you mean.  P2: yes. this traffic light simulation.  P3: okay.  P2: and this is traffic simulation.  P1: I don't understand.  P2: okay. we just stated that each car has it's own behavior and I think.  P3: but I think this should include in.  P1: everything in that system.  P3: in the system.  P1: we can say that the student interact with UI.  P2: then. yeah.  P1: and then UI .  P3: well no.  P1: interact with others behind that.  P3: no. no. the context view point is just this this part. coz there are no external systems. that's what I think.  P1: what about saving and loading stuff.  P3: I don't think.  P1: saving he result of simulation.  P2: yeah. but that's basically.  P3: that's part of the system.  P2: yeah. lets. that's okay.  P1: that's not part of the system. if you save something and you saving on operating system that is not part of you.  P3: yeah.  P2: but the system needs an operation. operating system. so it's always in here.  P3: yeah. you could always say that behind there is an operating system. but I don't think that's suitable. the biggest concern. coz there always an operating system behind every program. |
| 92 | 1:20:48.5 - 1:21:18.9 | P3: so that's not something new.  P1: oh yeah. the system be install or web base. like a stand alone or inside cloud.  P3: that's a good question.  P2: I think you can do both.  P1: but that consume al lot of money and time. |
| 93 | 1:21:18.9 - 1:21:37.6 | P2: oh constraint.  P3: so we have a problem I guess.  P1: like constraint. yeah problem constraint.  P3: problem which in we don't remove them.  P2: no  P3: I guess that. eighty one thirty four. |
| 94 | 1:21:37.6 - 1:22:13.1 | P3: there's problem which has. should the system be stand alone or web base or cloud base.  (writing) |
| 95 | 1:22:13.1 - 1:25:13.2 | P2: I don't think we have enough information on it.  P3: yeah but lets.  P1: then we can decide.  P3: let say we can decide.  P1: so professor E wants.  (writing) .  P2: I think stand alone is easier.  P1: why.  P2: to maintain.  P1: to maintain. oh that's not true. true  P2: to expand and we don't have that much.  P3: it's definitely cheaper then .  P2: what is.  P3: not the development part but the up keep part. coz you probably wont need this traffic simulation to the whole semester. through the whole year just when the students need it and that's couple of hours. is like with those thing with books you probably wont .  P2: you are les if you web base you really need internet.  P1: yeah.  P2: and if you’re not online then you can't use system.  P3: and the students like that one say student probably wont use it all the time just when they will be studying about it and that's let say couple of days.  P1: okay so we have two side of the story. the first one is. that student will use it. so you put trade off.  P3: we have trade off.  P1: what's the time.  P3: eighty four zero two.  P1: yeah so we have trade off. if we make it stand alone then everything run on students computer or faculty computers. and is cheaper for the company develop this software because simulations are really expensive for processor and memory power. and if you have like thousand people running simulation in your server you will need to have really really good server and that cost a lot. so that is the good side of having stuff on locally. the bad side is that you need to it's heavier to maintain.  P3: yes. coz you have to update everything.  P1: yeah you need to update every computer. they need to install everything in every computer and some times they need to use like only faculty computer and not their own because only faculty computer have a license or their IP or something like that. |
| 96 | 1:25:13.2 - 1:26:25.0 | P1: so that's the trade off. the other side is good to have in the cloud because you can easily push a new update every hour if you want but you need really really strong server for all this simulations. now professor did not said how much money she have. so it can be also. there can be also an option to pay for usage of this server for every simulation or for every hour of simulation.  P2: I don't think so.  P1: there can be an option. but it can be also very expensive so when I think about everything I think that is cheaper and easier to have local stand alone version.  P2: yeah.  P3: yeah.  P2: but I think there are there also coming a lot information in it. okay. all the calculation and that kind of stuff.  P1: what about them. what about this calculation.  P2: I think that quite heavy for a web base.  P1: yeah. |
| 97 | 1:26:24.9 - 1:28:27.8 | P1: okay.  P2: okay so we go to stand alone.  P3: solution stand alone.  P2: yes.  P1: we can remove this card. What’s the time.  P3:eighty six forty.  (writing).  P3: and the removal was eighty six forty nine or something.  P1: probably.  (writing)  P3: so for the context viewpoint there's only the only this is this students that they are the user. I can't see any other user or any other system that could be.  P2: so you basically have okay if only user and system.  P3: yeah.  P2: and it doesn't interact with any else.  P3: unless we consider this algorithm. or libraries external system but that's not . those aren't have external system those are in the system but .  P2: maybe there is traffic simulation program. so that can interact with it so we need to.  P1: I would make everything is part of our system. and then you have like library or like drivers brain library. let say that some engine.  P3: yeah.  P1: you just implement that in your program and that's it.  P3: yeah. definitely it's .  P1: we use that when we construct this simulation system.  P3: is the simple program to the external system so I think. |
| 98 | 1:28:27.8 - 1:29:54.9 | P3: okay.  P2: so the context view is not that hard.  P3: yeah.  P2: are any other context view for right okay. but what about programmer.  P3: I don't think so. coz this is like the basic stuff. that everyone would understand and there's nothing coming. like nothing developer specific or.  P2: is all internal so.  P3: yeah.  P2: coming into single.  P3: it's nothing.  P2: so we only have this view coz nothing interacts with the system.  P3: is the operating system define with in the context view or more.  P1: that's in the environment.  P3: yeah is like the environment yeah but .  P1: it can be . it should be in what be in deployment view point.  P3: definitely deployment.  P1: development and maybe context. and I suggest windows.  P3:yeah.  P1: because many many faculties have windows and not mac os or. so and it's like the easiest approach to develop for windows. |
| 99 | 1:29:54.9 - 1:30:16.4 | P1: and just not to forget I suggest also using Java. programmer language.  P3: yeah.  P1: coz that object oriented and it's it runs good simulation.  P3. yeah. okay. |
| 100 | 1:30:16.4 - 1:30:55.9 | P1: that is assumption.  P3: that's an assumption.  P1: okay. so we finish with the context view.  P2: yeah.  P1: okay we make five minutes break now. coz there are no.  P2: sure  P1: okay.  P2: I remember.  P1: so it's one hour thirty one  P3: I'm just gonna pause.  P1: so we are going on a break. |
| 101 | 1:30:55.9 - 1:31:11.3 | P1: so we are back from a break and now we are continuing with functional view. |
| 102 | 1:31:11.3 - 1:32:23.5 | P1: so. should we use UML.  P3: okay.  P1: which model we will use. UML.  P2: UML yeah. okay. functional from which viewpoint. view point.  P1: so functional viewpoint.  P2: okay.  P1: and now we are constructing the .  P2: out of developers view or user view. so the user view first.  P1: let start.  P2: yeah the user view. okay. |
| 103 | 1:32:23.5 - 1:34:19.3 | P1: so we definitely have some UI. user interface.  P3: yeah  P1: and the part of UI is this how can I say.  P2: okay.  P1: map .  P2: okay. in UI user can drag and drop and road building. intersection building.  P1: traffic light building.  P2: yeah. sensor building I think.  P1: no it's traffic light building. yeah. and then inside you have also sensors and. lights and stuff with it.  (drawing)  P1: that's it.  P2: the three for okay basic things.  P1: okay.  P2: okay. from road building. we can.  (knock knock).  P1: coming.  Instructor: hello just want to remind you guys that at two hours the design session ends so keep an eye on your recorder. also after that you have to go document your rationale forty five minutes and that go to Professor for the feedback his office is five eighty four.  P1: okay. alright.  P3: what. five eighty four.  P1: five eighty four yeah. |
| 104 | 1:34:19.3 - 1:36:06.7 | P1: okay. road building.  P2: okay. so select lanes. number of lane. connect lane.  P1: wait.  (drawing).  P1: not that is in the intersection.  P2: yeah.  P1: I think that in road building you should have just one simple road tool. and then you draw this road. and then.  P2: you have different kind of roads.  P1: well. yeah. yeah. that's true.  P2: select number of lanes. what else that we. oh the option on the right.  P3: then we said that in road building that the number of lanes will be automatically decided based on the intersection.  P1: yes. it's true but you also have like intersection and you know where.  P3: yeah that is true.  P2: you begin with the road and then put on intersection in it.  P3: okay.  P2: so exact number of lanes. what did we also. |
| 105 | 1:36:06.7 - 1:37:57.6 | P1: okay lets make it more simplistic. you can build a road okay.  P2: yeah.  P1: you build a road from . you click on intersection.  P2: we start with the road and the you put intersection on it.  P1: okay.  P2: so you have a blank map and then you say. okay I need a road.  P1: okay.  P2: that's your staring point.  P1: and you have just one tool build a road.  P2: build a road.  P1: okay. and you build a road and put intersection on it and then when you put intersection it will ask you . it will ask you if you want to make the whole road to have the same number of lanes as the intersection. so road will be. the normal road with two lanes. one is in one direction other is in other direction. and you can have an option to click on that road and change the number in and out lanes.  P2: I think it go from the road to the intersection and intersection say I've got two lanes and he says okay we go into two lanes intersection.  P1: okay. and then you can. I want to have just one tool for building a road. and then option to click on the road. and then say hey lets add few more in lanes like three more lanes in one direction and three more lanes in other direction.  P2: so the basic road is okay one in lane one out lane.  P1: yeah.  P2: so you have. that basic roads.  P1: yeah. and then we have possibility to change it.  P2: yeah. and that's the same with the intersection.  P1: yeah  P2: we have all the incoming and outgoing is one lane.  P1: yeah. |
| 106 | 1:37:57.6 - 1:38:23.7 | P2: now when you add.  P1: so have road building and that is just build a road. okay.  (drawing).  P1: change road settings and delete the road. or update the road and delete the road or edit or something like that. |
| 107 | 1:38:23.7 - 1:40:09.6 | P1: and with that we have all the control.  P2: yeah. so this kind like an abstract okay. and road change I think is more abstract. we can go zoom in in to it later.  P1: yeah. and then we have intersections. through again we have this build intersection. change intersection. setting and delete. there we can write.  (drawing).  P1: and then we have.  P2: I think we also need to have some connecting.  P1: yeah. so. there should be also a connection tool.  (drawing)  P2: run simulation.  P1: yeah.  P2: nice.  P3: okay. |
| 108 | 1:40:09.6 - 1:42:30.0 | P1: okay. now we have back end.  P2: I think we need to go a little bit into the settings.  P1: yeah.  P2: okay.  (drawing).  P2: okay. this select lanes. number of lane.  (drawing)  P1: what that mean. what it mean select.  P2: select number of lane. okay so you have this one way lane. just one road is going.  P1: oh to add a lanes.  P2: yeah. or that you have you got two lanes .  P1: okay so.  P2: so how big the road is.  P1: yeah. determine the number of lanes.  P2: yeah.  P3: that's and the wording is not right.  P1: yeah  P3: also merger point or junction point where they . where they.  P1: move drawing point.  P3: yeah.  P2: isn't that just a piece of road.  P3: yeah that's a piece of road but you can change it's position that's you should be able to change it position.  P2: length. |
| 109 | 1:42:30.0 - 1:44:48.4 | (drawing).  P1: can we part this one into the add and delete.  (drawing).  P1: because then you add any lane and delete any lane. and we have also function that calls. optimize road . road optimization.  P2: I think that what is road settings. so then we have.  P1: intersections.  (drawing).  P1: add lane.  (drawing).  P1: so extra option to add in lane and out lanes. so add lane. intersection.  P3: change number of lanes.  P2: yeah change number of lanes.  P1: for every part. for every .  P3: we don't need to code that in depth.  P1: okay. |
| 110 | 1:44:48.4 - 1:48:04.7 | P2: and as find direction of lanes.  P1: that is connecting.  P2: what.  P1: you that with connecting tool.  P2: okay.  P3: connecting tool.  P1: yeah you click on one lane and click on other lane and that makes the directions of that lane.  P3: okay. well there should also be possibility update after you build the road.  P1: I do not understand.  P3: well you build the road system and then for one so.  P1: all the intersection.  P3: no. there is one thing that should be for. the road system should be build the for one if you have . if you drive on the left or you drive on the right.  P1: you mean it should be like. if your simulating England traffic.  P3: yeah  P1: traffic in England. yeah. professor E is at UCI. so  P3: I think that was just.  P2: that just let say only right traffic is not English traffic. lets make that assumption.  P3: oh yeah.  P1: that can also handle by developer.  P2: yeah. this is a constraint. only right hand traffic.  P3: okay  P2: just. make it simple for us. if is left or right it doesn't matter.  P3: okay.  P1: let say that would be handle by developers and at this .  P2: I don't think in real life it doesn't really matter if you riding on the left or right side of the road. for traffic jams.  P3: no it's only matter if you simulating road traffic.  P2: no. is more like is visualization okay just  P3: if you actually building simulation for real life scenario. than it definitely matters. coz you wanna know which lanes are the busier.  P1: okay.  P2: yeah.  P1: you should not lose time on that. that can be handle by one single rule. that is on developer side. so there's should be an option on the beginning of the program to chose if it will be left side or right side. that's.  P2: I think that's something for the context view. constraint. |
| 111 | 1:48:04.7 - 1:49:47.6 | (drawing).  P1: so . now have this connecting tool for intersections.  P3: okay. that's only containing one functionality then it doesn't matter then we have.  P2: no.  P1: connecting tool okay. connecting tool has an option tool to add a rule. so if you click on one lane and the other lane we have the rule between this two lanes.  P3: where is the connecting tool.  P1: in intersection building. so add rule. delete rule. update rule.  P3: we could just say rule management.  P1: yeah.  P3: coz that is.  (drawing)  P1: and then we have. okay. |
| 112 | 1:49:47.6 - 1:50:52.8 | (drawing).  P1: okay.  P2: and the rule is which lanes connect to which lanes.  P1: yeah. and there also some automatic which the rule. let say two lane cannot go into one lane. and stuff like that. then you also have as system that will. that will read this rules and then determine if system will notify you that you cannot do that or you can do that.  P3: double checking.  P1: yeah. but that is also one part of rule management like read rule. and then in back end in system there will be some functionality to track this. |
| 113 | 1:50:52.8 - 1:53:39.2 | P3: so we have road building. change setting. okay. simulation. that Instructor want. those are sub (inaudible) . right  P2: yeah.  P3: okay. so. what we could do. all of this should be like join together. coz this is the part when user actually builds the map. okay. and then every each of this one should be.  (drawing)  P3: each so the whole system should be connected to something externally which be rules. so.  P1: I'll say engine. program engine.  P3: no no. I mean.  P2: rule management.  P3: yeah rule management but it's management is different for each of this one so I'm thinking about it. it's better to have it inside.  P1: I would keep it inside.  P2: yeah.  P3: inside.  P1: because you have different kind rules for this.  P3: exactly okay. so. still this is one thing and inside of this we have all this.  P2: yeah. more.  P3: sorry I mess up everything.  P2: I think.  P3: and each of this should be let say. divided into. two parts one would be related to user interaction and then the second one would related to rules management. coz each of this has part of . is partly base on user. coz user can draw the roads and stuff like that and then he can set the rules. and all of this rules have to be check by some internal system which is rule management. and .  P2: you are looking at user point of view now.  P3: okay.  P2: so the other one is more like developer point of view. so we need make that. so we only see the functionality what the user can do.  P3: okay. yeah sure.  P1: okay. and this is on the building block. and simulation block and that's it. |
| 114 | 1:53:39.2 - 1:58:30.7 | P1: okay. we should using cards right now.  P2: yeah we can.  P1: I missing one solution card. let see. where are your cards.  P3: all over the place.  P2: I used yours.  P1: okay.  P2: we need to wrap it up.  P1: so the problem is how to. they have traffic building. okay. so the problem is how to model the traffic building part of functional viewpoint. and the user view. are you proposing some solution.  P2: problem. what was the problem again.  P1: how to model the traffic light functionality inside the user view of functional view point.  P2: how to model traffic light.  P1: functionality.  (writing).  P1: who wants to propose some solution.  P1: okay. so I'm placing the solution card. the time is. one fifty six. so it is one hundred sixteen. I'm proposing to settings will be like traffic light logic management. and there will have everything from rule management for that one traffic light is select. up for so this rules are like for how long it will be open and .  P2: yeah. functionality only list of option and that's . variety of sequence what ever it is. timing schemes and sensor.  P1: yeah.  P3: this so.  P2: for this point of view it's really only those three options.  P3: okay so first of all so I think inside is this is also which road are connected to which one. so in we have a traffic we have intersections.  (drawing)  P3: okay so which lanes are connected to which ones. and this scenario is easy but in other scenarios you would have more multiple lanes you can decide if some lanes will be strictly for turning right or.  P2: yeah.  P3: so I think this is not that related to rules or on other hand.  P1: okay. that is we presented as let say. overview like in the right side of the pop up you can have like little picture where all the roads that are connected to that one. that light will influence are colored by red light. let say. so have still your intersection and then which red light color all the roads. that will be open to driving when that light goes green.  P3: okay |
| 115 | 1:58:30.7 - 2:01:33.5 | P1: and do you think that. there should be also some police or something of rules inside this setting.  P2: I think so.  P1: yeah. so when you click on.  P2: if you drag a traffic light into the map. I think you can adjust between several traffic light so go only left go only right go straight through go what ever he wants.  P3: okay. so lets put this.  P2: basically you have four . yeah four traffic light one go left. one go right. one go straight through and one round thing. those are the basic stuff light. traffic lights. and then the system need to check if whether is okay to put the traffic light there. oh yeah. more traffic light.  P1: system can. yeah. so system will already propose you which traffic light to use base on connection you already make with other lanes.  P2: yeah.  P1: and then you can change that. you can override that with other traffic light. traffic light but only this which are allowed. so if your lane can go right and straight. you can only add right and straight and the normal one. you cannot have the left arrow. because that will cause a crash and you don't want that to happen.  P3: okay.  P2: I think you can make just general traffic light and put it on road. and if you already determine what. which way the road connects. and the computer can say okay we need this traffic light.  P1: yes.  P2: coz there are so many option if you can. you go three way. in one lane. then round light. if you can go straight or left and its only straight arrow and left arrow.  P1: yeah but that can be override it. because you can have one lane. with let say straight and the right okay. and then for straight you have a red light. but for right you can have a green light like this conditional green you know.  P2: yeah. but then you need two head lights .  P1: yes. y  P2: you also need to think about okay you have traffic light above the road and beside the road.  P1: I don't think that matters. that don't important for this simulation |
| 116 | 2:01:33.5 - 2:02:06.9 | P1: okay so your now drawing the .  P3: I'm drawing my functional view which had include this.  P1: so can we solve this problem  P3: yeah sure.  P1: so traffic light functional view. so okay.  P3: that's what i what.  P1: so that's here. so we need to draw this in more detail.  P3: that's what I wanna to propose.  P1: yes |
| 117 | 2:02:06.8 - 2:03:53.4 | P3: so now we split all this thing into three different category which is okay and then I said we can added this center one bigger category.  P1: yeah.  P3: but I change my mind. we should . we should combine this two coz this is more like building the road building the road map.  P2: yeah.  P3: and this is connected to rules management actually. how the traffic behaves in situation.  P1: so for the recording his proposing to connect road building and intersection building into one bigger group and then to look at the traffic building. traffic light building as separate block.  P3: and so inside of this traffic light we as you propose that we should have two different views inside user interface.  P1: yes.  P3: one for road building and one for traffic light.  P1: yes  P3: and this would be actually quite good. to put in the functional view as well.  P1: yes.  P3: so from this point you can actually see the distinct that two things are separated. and inside this traffic light management we could have a rules management. which would be changing all different rules from when should light be on whatever separate light are connected and stuff like that. |
| 118 | 2:03:53.4 - 2:06:00.7 | P3: and the second part would probably be.  P1: you have three parts.  P1: three parts yeah. what was the second.  P1: so the first one is rule management the second one is light let say it placement or building or like placing all the object like sensor and different lights. and third one is connection management.  P3: yeah.  P1: which is somehow connected to rules management .  P3: yeah which is.  P1: but you need have an option to add connection. delete connection update connection  P3: okay let say.  (drawing).  P3: okay that's it then for the. what else we got. and the third block inside the system would be not traffic simulation. but let say traffic management. sorry there should be. actually two more parts.  P1: right now drawing the whole.  P3: yes that's the whole system sorry and then inside this the system is road building traffic light management there would be one block for simulation and one for block traffic behavior management or what ever.  P1: engine. traffic engine.  P3: that's it.  P1: and simulation is inside traffic engine.  (drawing).  P3: and that's we have traffic. okay I'm gonna. simulator. |
| 119 | 2:06:00.7 - 2:06:43.6 | (drawing).  P3: traffic setting or traffic management . what do you prefer. management. coz that would include every aspect of traffic. from distribution from placing view points.  P1: oh yeah. traffic management.  P3: okay. and that's it. |
| 120 | 2:06:43.6 - 2:08:28.9 | P1: well you also need some render if you are drawing all system. like graphics something. what is that for for Java we have swing or something like that.  P3: yeah let say just rendering engine or.  P1: renderer . graphics render or some just graphic.  (drawing).  P1: okay guys. we spend our time for design.  P2: but we also need information view.  P1: at least yeah.  P2: so I think view is kind a.  P3: okay. yeah.  P1: lets hurry up with. so we removing cards at one hundred twenty eight. and fifteen seconds.  P2: okay so the information view. |
| 121 | 2:08:28.9 - 2:11:40.4 | P2: just let say the user view.  P1: that simple we have only  P2: yeah.  P1: local files. like export and import and you know. we can save your simulation.  P2: is more okay like the settings or information that close to the whole system.  P3: yeah  P2: so you say okay. I need the length of the road. input it in the system and then the system calculates okay. and draws the road.  P1: so what you think about to not go to. not work to deep. and consider both views at one. like end user and system like we did for our assignment. so you have like user and then user is constantly changing some setting.  P2: yeah  P1: so we have setting box, on every change it goes to the system side and then system saves that into some kind database or something like that. okay.  P2: yeah.  P1: or local file for variables. and then system have some. double check management. checking management. tracking system that looks on all collisions all rules and stuff like that. and returns the information to the user like hey like notification like hey this is not allowed you can not that rule or you can not applied or you cannot connect this two roads. so server response to the user if there is some problem. and all the time renderer collect information from all this variables all this files. and settings on the server side. oh not server but on the program system side. and present them to the user. so that can be high lighted road in red that there is something is wrong. but that can be anything. and when the simulation start also the render read in every mille second where every car is and draws it on the panel. so it's really not that complex. |
| 122 | 2:11:40.4 - 2:13:42.2 | (drawing).  P2: okay. so you start tracking a road to the map and you say okay. the road has be this length and then system said okay we draw his road coz in the beginning it doesn't matter and I forgot one step here track road. and then if you drag the intersection to it. and the system checks okay. see if the validation is okay. otherwise you need to change intersection to the road, connecting.  P1: propose changing intersection setting.  P2: yeah. I think if we have two lane into the intersection two straight two lane.  P1: yeah.  P2: then the computer can say okay we begin like right now with two lane intersection for . only for this side of the road.  P1: or we can propose joint. lane joint and then intersection will have let say six lanes. that you need to place a joint of this two lane. but spreading this two lanes. that explain .  P2: I think you can do that automatically.  P1: yeah.  P2: so if there is two road then intersection need two roads just no matter what the all road are two roads,  P1: oh okay. and then if you change.  P3: I'm thinking what about if this is we going in too deep. we are discussing a particular scenario.  P2: yeah. you need to have. if there a validation.  P3: can I see. |
| 123 | 2:13:42.2 - 2:15:55.4 | (drawing).  P3: okay so. first the user has to build the road right. road map actually and beside there the whole thing from building intersections determining how many road how many lane there should be connecting those intersection and yeah that's it.  P2: so it's about the information flows through the whole program  P3: oh yeah. That’s what I'm coz this is just the information that flows to road building process right.  P2: yeah.  P3: did you wanna go that deep or so for every. coz this is okay. but have to make that for building lights. building traffic light for running simulation.  P2: I was thinking information and validates. changes. add  (drawing).  P3: okay. |
| 124 | 2:15:55.4 - 2:19:39.2 | P2: then you can run it.  P3: we could run into problem because we have a loop here.  P2: yeah basically what you expected. it is.  P3: yeah. that is right  P2: coz if you have one you have to do the settings and that you have to validate it again make the changes or not. and you gonna add something or not. and then you run program  P3: yeah should be there. some sort of. that and that.  (drawing).  P2: that basically what happening with information  P3: yeah.  P2: the system get information he need to validate it and gives back an error so the user change it  P1: so what happen.  P2: this is basically what how the information flows.  P1: okay. so where we start. okay settings what it is.  P2: you do something or you build a road or traffic light or intersection you set the settings the system need validate all the settings okay. against all the rules and if not then you have to change. and if its okay then. then it come. then you add can some new thing or just run program.  P1: okay.  P2: if he runs it. then see if everything is alright and then he can execute all the things.  P1: okay I propose the same thing like with petri net. so here user can change settings so every thing that user does is changing something.  P3: yeah of course  P1: add element add rule update something delete something you name it. okay. that triggers the tracking system tracks everything okay by the rules. that checking system can be okay if yes and goes back to the user. if no goes to the notification system hey you cannot do this. notification.  P2: yes.  P1: and in every case triggers the update render it view. it can be like new element edit or notification presented let say red something color. something color in red. so this triggers every time and that is the whole cycle it cycle cycles and user also can then chose to run simulation. and then if simulation is run. then you have settings that triggers that is triggers all the time and then simulation is run and it triggers. again render view and that's it. |
| 125 | 2:19:39.2 - 2:24:06.2 | P3: I wouldn't do that. I would put this. with Petrinet is this is not correct  P1: yes it is  P3: no you have to do this connect .  P1: yeah yeah. you can have one or box between. yeah. there was a box because I want to draw something else. is like. okay you have one circle that goes directly go directly.  P3: but this would . this would trigger running simulation in every case.  P1: no.  P3: yeah.  P1: no because it have one circle and two arrows and it decides  P3: no it goes in both.  P1: no  P3: yes.  P2: you can.  P1: when I was learning Petrinet. if you have box that is ready to fire it fires one bullet to every circle which is connect it. and every circle that is connected to her have one bullet inside. and how to get this when you have yes and no. that can be only decide  P2: you can easily do that if this has then you go to run.  P1: no. because we don’t want to run simulation every time you making changes adding rules and stuff like that and then you decide okay now I want to run the simulation. can you check please. the behavior of Petrinet coz I'm pretty sure we can do this .and then it is decided which box will be triggered left or right.  P2: we can probably write as constraint.  P1: if you go. down down down. so what happen here. it trigger both and then you can decide which one you choose yes.  P3: it trigger both of them  P1: yeah and then you can decide which one you will do.  P3: they happen at the same time.  P1: no.  P3: they happen in each in any case  P1: look at the tree  P3: like you can do this way. you can do this way. so where and A this . and then it trigger B2 and B3. you can go either this way, to here of this way,  P1: but that two things are not happening at the same time.  P3: yeah but you don't know which one will happen that's a problem. it's not like it will happen this or this.  P1: yes that's the power of choice.  P3: I didn't. but you didn't which order in which scenario will happen that’s the problem  P1: that's on the the user to determine.  P3: must not.  P1: your presenting information flow.  P3: okay.  P1: if you have a tree and you are going through this tree from source to the drain. okay. that path you making to the tree is are the action perform by user okay.  P3: okay.  P1: and that path can be like build build build run. or it can be run build build run build run. that can be anything that's the endless path. like there.  P2: let say for now that okay we can do it right here and if make a notation okay we don't we don’t have the time for it to really look into it now is it's correct or not but with the constraint of is not run every time. that's solved this way then we go to the documentation like  P3: coz we have run. okay. |
| 126 | 2:24:06.2 - 2:24:42.4 | P2: fourteen okay. so we have an one hour and a half with this and we need to go to Jan martijn  P1: we have forty five minutes.  P2: we are over the time for design all this.  P1: we should now draw this in some program. like computer. |