```
 1 ---
 2
 3 [00:08:23.27] R: {laughs}
 4
 5 I: So, how do you feel about what you were just working on?
 6
 7 R: Um, definitely have a question now about uh, scanning in for, uh, the kings,
 8 uh, when, how to make it read in the array so, which row it is on. Like, I'd
 9 have to go back and look at my board function that I made, which is what I
10 started to do here, and see when it, cuz when it gets to the end it needs to
11 switch to become a king so it can move to any direction, so I just need to be
12 able to recognize when that gets there.
13
14 [00:09:02.24] R: And what function to put that under. So, I--right now I have it
15 under move_piece, but I'm not sure if that's where he wants it, so I'll probably
16 email him or [the TA].
17
18 I: Hmm. So you have the bit that recognizes it as a king under move piece?
19
20 R: Yes, right now. So.
21
22 I: Hmm. Um, so, how did it feel, on the stuff you were working on just now. I
23 mean, did it feel like a typical programming session for you?
24
25 R: Mmm, kind of. Uh. I guess, usually I'm around more people, I don't know, so
26 like, sometimes we'l talk out loud about it, the stuff we're doing. Like, just
27 bounce ideas off each other. But, um, besides that, like you could probably
28 tell, I jump around a lot when I program.
29
30 I: Sure, so do I.
31
32 [00:09:46.13] R: Yeah. Um. I just. Uh, I'll get like, as I'm doing something
33 I'll get like, an idea to do another thing, so I'll finish up something and I'll
34 just go to the next function without finishing one.
35
36 I: Mmmhmm.
37
38 R: And, I dunno, that's, that's usually how I just do it. Jump around.
39
40 I: I noticed you had some spots where like you had, like, if, dot dot dot, and,
41 is that?
42
43 R: Yeah, I--I'll do that, like, if I know what I want to put underneath of it.
44 Like, I know what I want to say here, I just can't think of it in the code form,
45 um, so that's my way of knowing 'alright, I know I need something here, but,
46 before I forget what I want to put underneath of it, put it here,' and then I'll
47 go back and usually think about how would the code read it in. So.
48
49 [00:10:28.24] I: What do you mean how the code would?
50
51 R: Um, kinda like how I was saying cuz, uh, I was like, I know I want it to see
52 when, if the red piece has reached the white side of the board /mmhmm/, then do
53 this. /mmhmm/. So, I can't just type in "if the white piece reaches in," I--the,
54 the C language, I guess, putting it in those, their terms, their terminology
55 into programming language.
56
57 I: So, but like you, when you, sometimes when you put those dot dot dots, it's
58 because like, you know how you would say it, in sort of like English--
59
60 R: I, yeah, I would explain it in English but, I'm like, I'm not sure how to
61 translate it right now. So, that's like my placeholder type thing, so I know
62 that I need to come back to that, but I don't lose my train of thought of what I
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 63 │ want to do underneath of it.
 64 │
 65 │ [00:11:16.26] I: Ahh. But, when you come back to it, how do you remember what
 66 │ was supposed to--
 67 │
 68 │ R: Usually I'll comment to the side, like, uh, what my English translation of it
 69 │ is. So, I didn't do it there because I knew I was--go back to it right then, but
 70 │ if I haven't gone back to it I would've just commented to the side, like
 71 │
 72 │ I: Sure, sure.
 73 │
 74 │ R: And then, if I have a piece of code, I'm like, OK, this might work, but
 75 │ sometimes I'll put a question mark after it, so I know to go back to it and make
 76 │ sure that this actually does work.
 77 │
 78 │ I: So the question mark is like, I think this should work, but I should check
 79 │ that this should work.
 80 │
 81 │ R: Yes, that's usually what that is.
 82 │
 83 │ I: Sure, sure. OK. That makes total sense.
 84 │
 85 │ [00:11:56.09] I: Um. So, you haven't, uh, I guess what I was gonna ask was, you
 86 │ haven't compiled your code yet.
 87 │
 88 │ R: No. I mean, I've compi--there's two, I think check_step(), is the one, and
 89 │ then my board one because that was a homework problem we had the first week. Um,
 90 │ I've compiled both of them and both of them can compile, uh, but I've never
 91 │ actually like, ran 'em because they can't really run by themselves. You need
 92 │ a--I need my check_move to still work for my check_step to work. So.
 93 │
 94 │ I: So you were talking about that before, I think, as why it's difficult to, I
 95 │ guess, I guess you were talking about like he encouraged the class to debug and
 96 │ test, and you were saying that's kind of hard, because
 97 │
 98 │ R: I dunno if maybe I'm just not seeing what he's saying or whatever, but from
 99 │ where I'm sitting and doing my program, to me it looks like I need to have
100 │ something working in each of the 8 functions before I can actually see what
101 │ works and what doesn't. So, that's why I haven't really compiled anything.
102 │
103 │ [00:12:55.14] I: Is that, I mean, did things feel like that, like I mean in
104 │ [Beginning Programming] was that the way things would also work out?
105 │
106 │ R: Um, in [Beginning Programming] we didn't really know functions until like the
107 │ end of the semester. So, What I would--and the only time we  did have functions
108 │ at the end, um, I could like print the screen, which I can already do now, I can
109 │ like print the board at the beginning stages, but without doing anything else.
110 │ Because, uh, that didn't involve anything else, so it's just print function, so,
111 │ and I can do that cuz that was the homework problem, so I don't bother compiling
112 │ that now cuz I know that works. So, uh, but we did that in Beginning
113 │ Programming.
114 │
115 │ [00:13:30.27] R: But, like our first project last semester was, uh, a fantasy
116 │ football team program. And we had to, you know, read through this file and make
117 │ a fantasy football team, and, we didn't know functions and so everything was
118 │ just in one long file. So, you have to do the whole thing--maybe do like one
119 │ section like, just pick a quarterback and you could test that, but besides that
120 │ you had to do everything until you could test, because it was one function, one
121 │ file.
122 │
123 │ I: Right, just all in main or something?
124 │
```

125 R: Mmmhmm, yes.
126
127 I: OK. And so, did you end up in a, did anybody end up in a problem where like,
128 you could spend all this time working, and then the first time you go to compile
129 it, it turns out that the compiler is not happy with like a lot of parts, like
130 did you end up with
131
132 R: Oh yeah. Uh, all the time I end up with bugs and uh, stuff. And at that
133 point, the good thing is that when you just go back and it's like 'oh, ok, I
134 missed a bracket here or I'm off by something here,' and that gets rid of a lot
135 of things--the little silly errors that people make. Uh, but then if you get,
136 like a big error, uh, which I'm pretty sure I had in that--
137
138 [00:14:32.04] R: My array project, my--the second project we did last semester,
139 that I had a big error. I had to delete like half the code I worked on. Like,
140 just cuz, like I had said last week, I didn't do very well on arrays. So.
141
142 I: Oh. Was it cuz of one thing, or was it like a repeated--
143
144 R: It was kind like a general, like, what I was trying to do didn't work with C.
145
146 I: Do you remember what it was you were trying to do?
147
148 R: I don't know exactly, but uh, I just remember, like, whatever I was tryin to
149 do, cuz I had my friend help me, he's like "you can't do this this way," like,
150 it just, C doesn't recognize whatever I was trying to do.
151
152 I: Huh. So that was like, it sounds like it's almost kind of a case where your,
153 your plain English of what should happen /yeah/ can't actually translate--it's
154 not even that you're not sure how it's--
155
156 [00:15:19.08] R: It's like, it was impossible.
157
158 I: It was never--
159
160 R: It was never allowed.
161
162 I: There is no word for that /yeah/ in this language.
163
164 R: I {laughs}, that was back then, so. That was always fun.
165
166 I: Um, I guess my last question, and then we're pretty much out of time, um, is,
167 so the instructors have talked about, like, have they talked about how they're
168 grading the projects?
169
170 R: Um, they've told us that they're going to pretty much compile your co--if
171 your code doesn't compile, there's nothing they can really do. You have to be
172 able to get it to compile, or else it's pretty much a zero. Which makes sense.
173 Um, and then they're gonna go through and test your output versus their
174 program's output that they already made.
175
176 ---
177
178 [00:17:53.01] I: OK. Do you have anything else you'd like to talk about?
179
180 R: I think I'm good, I--just
181
182 I: Anything else on your mind?
183
184 R: Sorry I'm not the greatest programmer {laughs}
185
186 I: No, hey hey hey. That's {shakes head}, first of all, I mean, um, how come

187 │ you're apologizing?
188 │
189 │ R: I dunno. It's a study, and I'm probably not the best test subject.
190 │
191 │ I: So, it's interesting that you say that, but I mean, part of, part of what
192 │ we're trying to find out is both how people program and how they feel about how
193 │ they're programming. And so, if you feel––
194 │
195 │ R: Uhh, I definitely am not a very con––uh, very confident when it comes to
196 │ programming. Which, is, not necessarily in things overall, but in school I
197 │ usually feel very confident so programming like, kind of scares me a little
198 │ because I don't feel as confident about it.
199 │
200 │ [00:18:41.22] R: But um. I dunno. I just, maybe cuz I don't have the––as much
201 │ experience as like other people in my class. Cuz, a lot of people I know, like,
202 │ either they had like comp sci in uh, high school––AP comp sci––and so they've
203 │ done all this stuff, or, like they just picked it up really quickly, and I was
204 │ like "Oh, I didn't do either of those." So.
205 │
206 │ I: Mmmhm. But, I mean, you know, I could imagine. So, you play sports, right?
207 │ And, I could imagine, uh, you play certain sports in high school, and then you
208 │ get to college, and you find out there's this new sport that you never had in
209 │ your high school. So you might not feel confident about playing it. But then, in
210 │ the first five minutes, you could feel like, oh no, I really, I play this sport
211 │ well. So, it sounds like part of this is that you haven't had the same
212 │ experiences that some of your other classmates had.
213 │
214 │ R: Yeah.
215 │
216 │ [00:19:32.13] I: But, it also sounds like, I mean, you would know if when you
217 │ started a totally new sport, whether you felt confident at it or not. And it
218 │ seems like this is kind of a new sport, and you––you don't quite feel confident.
219 │
220 │ R: yeah, like
221 │
222 │ I: So.
223 │
224 │ R: I dunno. I kinda, I think it probably stems a little bit back to that I still
225 │ probably am not very confident that I wanna be an electrical engineer. Um, so, I
226 │ dunno if it's still like, my lack of confidence that I can actually be an
227 │ engineer, with all the tough classes and everything, uh. I'm not really sure
228 │ where it comes from. Cuz like you're saying––I actually did {laughs}, I play
229 │ Quidditch.
230 │
231 │ I: Uh huh. I was gonna ask, that's uh––
232 │
233 │ R: Yeah.
234 │
235 │ I: That's Deathly Hallows earrings, right?
236 │
237 │ R: Yes. I play Quidditch. On the team
238 │
239 │ I: That's really cool.
240 │
241 │ [00:20:19.05] R: And so like, you're saying that's a new sport. I just came and
242 │ played and like, right away I liked all the people, I had fun doing it and
243 │ stuff. And, even in other classes, like, um, I'm just taking like sociology this
244 │ semester. Never taken any sort of sociology course, but it's like, really
245 │ interesting, like in-depth cool things. And, so. I'm interested in pursuing––I
246 │ don't, like I felt fine in it. Programming, at the first, like I remember
247 │ feeling, like when we started learning like if() statements and stuff I was like
248 │ "Oh, I can do these things, this is cool," and then, when I got lost I think is

249 | when I started losing that confidence thing. And then I never really got it
250 | back, so.
251 |
252 | [00:20:59.20] I: When was it you started to get lost?
253 |
254 | R: Halfway through last semester, like with the arrays in the second project.
255 | So.
256 |
257 | I: Right, cuz you mentioned that last time, and it, it sounds like, I mean my
258 | read on it from what you shared, it was like things started to really turn, and
259 | you felt lost, and it sounds like this whole code you'd written and spent a lot
260 | of time on turned out had to get tossed.
261 |
262 | R: So, I guess it was like, demoralizing, kind of, and, like, like I don't want
263 | to sound cocky or arrogant or anything, but in high school I did very well in
264 | academics. And, so, I never really, like anything that I had to work for, I
265 | worked for for a short period of time, got it, and like I'd understand it, and
266 | if I didn't, like it was really easy usually for someone to explain it to me.
267 |
268 | [00:21:45.00] R: And, I felt like I didn't really get that after I lost
269 | everything on that second project, I was like, I wasn't able to build myself
270 | back up out of that, which probably stems to why, not as confident in the class.
271 |
272 | I: Hmm, and if you're thinking about the larger even sense of whether or not--I
273 | wasn't sure if you said you're not sure that you want to be an engineer, or
274 | you're not sure that you *can* be an engineer.
275 |
276 | R: It's a little of both, I think. Like, probably the want to be engineer is
277 | less so because of the fear of I can't do it. Um. But, I don't really know.
278 |
279 | I: If it turned out that you just had to work harder at this stuff than other
280 | stuff.
281 |
282 | R: Yeah, I would definitely work harder.
283 |
284 | I: I'm not saying you should, I'm saying like.
285 |
286 | [00:22:34.12] R: No, yeah yeah. No, like I don't wanna try and just, oh do
287 | something else cuz it's easier. I'd like to work hard at it. It's just, do I
288 | want to. Like, is it something that I wanna do for the rest of my life.
289 |
290 | I: So, I mean, one thing would be like, like if you had showed up to the first,
291 | uh, you know Quidditch match, Quidditch practice, and you liked it, but like you
292 | got the sense that, I dunno, which position do you play?
293 |
294 | R: Chaser.
295 |
296 | I: You're a chaser? OK. Right. So, if like, you know, your quaffle-handling
297 | skills aren't that great and you thought about it, and you were like "alright,
298 | to be a great chaser, I'm gonna have to put in, like, an hour or two of practice
299 | every day," and most of the time for a lot of other sports you may not have to
300 | do that, but, you--so there's the question of like, OK, it would take more, to
301 | be a good chaser. But then, is Quidditch, what I wanna play?
302 |
303 | [00:23:24.04] R: Yeah. Or, do I wanna. Cuz, at the time I also wanna do club
304 | basketball, but they conflicted. I was like "well, do I wanna do Quidditch and
305 | work harder to run with a broom between my legs, or do I wanna play basketball?"
306 | And I decided Quidditch was worth it, cuz I'm like "well, I've never done it
307 | before. Let's just try something new, work for it and stuff. So."
308 |
309 | I: And, and do you end up putting in, practice time for Quidditch?
310 |

311 R: Yeah. We practice three times a week. And then condition twice a week. So.
312
313 I: You have conditioniong?
314
315 R: Yeah, we have conditioning.
316
317 I: So, this is every bit a serious sport.
318
319 R: Yes. Yes, we have a tournament next weekend, actually, so. At Virginia Tech.
320
321 I: Wow. And, I mean good luck. Does it make you happy?
322
323 R: Yeah, I love it. And, I think a lot of it was also, like the welcoming of the
324 people made me wanna work at it also. Like, everyone was so nice right away. And
325 I'm not saying people in programming aren't nice. Like, everyone's {awesome?}
326 there.
327
328 [00:24:15.26] R: Um. But that made me wanna work hard. And plus I've always been
329 a Harry Potter fan. So, that made me wanna, like "I can play the sport Harry
330 Potter plays," so.
331
332 I: Sure, sure. I mean, well, thank you for sharing that.
333