May 2020

OfficeHours_IS31_20160428_Seg02.pdf

Participants: IS31 (male, black hooded jacket), S1 (male, gray sweater), S2 (girl with hat), S3 (out of frame; voice only)
Setting: IS31 assisting S1 and S2 with practice problems for an upcoming exam

0:00
xxx IS31: I don't know that.
xxx S1: uh:
xxx no
xxx I did (know) actually
xxx IS31: [I: don't know ((shakes head))
xxx S1: [what (it) was a T
xxx the um
xxx the time expected value?
xxx IS31: ((laughs))
xxx ((quietly)) I don't know
xxx S1: the (T value)
xxx (T of X)
xxx (and then the↑) ((trails off))
xxx ((0:13-1:00 no dialogue))
xxx IS31: uh
xxx y-you (.1) you have↓ (.) nine?
xxx in sum?
xxx I mean
xxx S1: yea=
xxx IS31: =do you have more ten?
xxx S1: uh no
xxx she um
xxx submitted like nine
xxx I think nine would be the [last one.
xxx IS31: [oh ((nods))
xxx S1: wouldn't have worked ten.
xxx IS31: ((laughs))
xxx S1: ((flipping through notes)) <u>hopefully</u> not
xxx IS31: yea
xxx [because:
xxx S1: [now is the finals week is in that
xxx uh (.1)
xxx uh when is the homework <u>due</u>
xxx the ten
xxx if she give us ten,
xxx like homework ten,
xxx (is) gonna be finals week.
xxx IS31: oh
xxx S1: cause this is the last we gonna have class like
xxx next week.
xxx IS31: you will?

xxx you will not have class next week?
xxx S1: next week we have class. ((nods))
xxx IS31: oh oh [oh oh ok I know I know. ((nods))
xxx S1: [(it is the) last week we have class.
xxx ok
xxx can you,
xxx uh
xxx open up the
xxx uh
xxx solutions↑ for um↑
xxx IS31: [homework
xxx S1: [the previous (.) eight.
xxx IS31: eight. ((turns to laptop))
xxx yea=
xxx S1: =yea=
xxx IS31: =this is the ((looks up))
xxx S1: I have a question for six point six?
xxx ((gets pen and paper ready))
xxx ((pause))
xxx IS31: ((opens textbook))
xxx six point six?
xxx S1: yea. (.2)
xxx ((points to screen))
xxx the ((incomprehensible)) question
xxx go there
xxx I will show you something.
xxx (pause))
xxx IS31: ah
xxx S1: h:ow? do they get 1500 here
xxx IS31: mm:
xxx let me see. (.2)
xxx uh
xxx ((incomprehensible)) <standard deviation>.
xxx S1: you put- you put it (the) standard deviation
xxx right?
xxx IS31: yea
xxx so
xxx you know the: variants (.) is twenty-five.
xxx S1: so it's gonna come,
xxx yea
xxx twenty-five,
xxx but variants twenty-five
xxx IS31: [yea ((nods))
xxx S1: [but then if I want to uh put that with the formula
xxx right?
xxx it's gonna be (.)
xxx um:
xxx IS31: twenty-five [minus pi
xxx S1: [uh

xxx n square,
xxx uh
xxx and (the) standard deviation.
xxx which is=
xxx IS31: =no
xxx no
xxx n-n-not n square.
xxx just ((incomprehensible)) (profiling invariants).
xxx S1: ((pause))
xxx ((flips page in notebook and shows IS31))
xxx like this (.) right here.
xxx IS31: ((pause))
xxx (reads))
xxx oh
xxx th- this↑ is for the:
xxx yes
xxx this is uh:
xxx standard deviation of (.1) the
xxx I mean
xxx mm:
xxx the sum of s ((incomprehensible))
3:00
xxx right?=
xxx S1: =mhm
xxx IS31: this one
xxx and you'll want to get (merit) so you just need (.1)
xxx ((looks at S1's notes))
xxx to ((incomprehensible))°
xxx but how↑ do you get this?
xxx S1: that's what I [(would like))
xxx IS31: [((incomprehensible))
xxx S1: (is this ab squared)
xxx like
xxx [what is
xxx IS31: [ok so:↑
xxx and to get a variance you need to take (.)
xxx ((takes out calculator))
xxx the: twice power of that
xxx [(that)
xxx S1: [this one?
xxx IS31: yea↑
xxx S1: oh
xxx IS31: so (.)
xxx like (.1)
xxx like this is:
xxx uh
xxx approximate (.1) one hundred
xxx S1: (one seven (.) two nine) [ok
xxx IS31: [yea

xxx but I think you- you better use this directly
xxx so there will be no error.
xxx because
xxx if you use this number there is a (running) error.
xxx S1: but it's zero anyway.
xxx IS31: eh?
xxx S1: then I get the same answer
xxx like if I use [that one
xxx IS31: [ok
xxx ok
xxx [yea yea yea
xxx S1: [(and the value)
xxx look at here↓
xxx and like
xxx I didn't use the [fifteen thousand right?
xxx IS31: [ok
xxx be-because
xxx because they are- they are near to each other (.2)
xxx yea°
xxx you can just use this.
xxx ((leans in and reads S1's notes))
xxx because the square root of (.1) uh one thousand (.)
xxx five hundred is
xxx uh
xxx near to this (.) number,
xxx so
xxx S1: oh
xxx so I don't need to use this square root here as well.
xxx IS31: yes. (.3)
xxx because you are always-
xxx you should always divide the: standard deviation
xxx right?
xxx you can get the standard deviation depending on if
xxx the variants and [((incomprehensible))
xxx S1: [>so the variants<
xxx >if I want a variants<
xxx right
xxx this is the variants
xxx IS31: so the variants is
xxx is this way ((shows S1 textbook))
xxx ((indistinguishable))
xxx the original variants
xxx S1: oh
xxx the variants
xxx if I get it the variants
xxx ok.
xxx so it just multiplies with this ok.
xxx where they square it
xxx right?

xxx IS31: yea
xxx so
xxx they are: (.1)
xxx t-they are the same,
xxx S1: so even if I do
xxx like
xxx sixty (.1)((types into calculator))
xxx sixty multiply twenty-five, (.1)
xxx fifteen hundred
xxx IS31: yea
xxx and get square root (.)
xxx it's° same as this
xxx one°
xxx S1: ((erases markings)) so I can change it here
xxx ((rewrites)) I can (put in the) square here right? (.3)
xxx and square here,
xxx IS31: mm:
xxx yea
xxx you can do that
xxx but:
xxx uh
xxx it's the same as you did it by standard deviation
xxx IS31: yea
xxx S1: yea
xxx (so it's) twenty-five,
xxx then it's gonna be:
6:00
xxx ((5:15-7:11 no dialogue; S1 occasionally mumbles to
xxx himself))
xxx S1: ((moves laptop screen so IS31 can see))
xxx ((reads over question and mumbles to himself))
xxx how do you do this
xxx IS31: what which one
xxx this one?
xxx S2: ((enters room and sits next to IS31 out of frame))
xxx IS31: ((looks up at S2))
xxx ((incomprehensible))
xxx S2: (hi)
xxx IS31: ((reads question and mumbles))
xxx uh
xxx which part
xxx part eight?
xxx S1: ((nods)) yea
xxx IS31: uh:
xxx you-
xxx uh have you ever learn this chapter seven?
xxx S1: ((nods)) yea
xxx IS31: but
xxx so:

xxx you should know: that (.) you can just(uh):
xxx ((saying "just" but elongates by adding uh))
xxx u-use the:
xxx m: (.2)
xxx you use a [((incomprehensible))
xxx S1: [estimate (.) right here?
xxx IS31: yea
xxx ((incomprehensible)) to estimate (.1)
xxx ((looks around))
xxx S3: ((to S2 out of frame)) are you a student? (.1)
xxx >or [a TA<
xxx S2: [yea
xxx IS31: to estimate (the meaning of) ((incomprehensible))
xxx S2: student
xxx IS31: I- I think she have (.1) signed before
xxx S3: have you-=
xxx S2: =yea
xxx S3: have you seen us before?
xxx and you have given us [consent [before?
xxx S2: [mhm
xxx [mhm
xxx S3: so she's good.
xxx ok
xxx S1: like
xxx (is this)
xxx ((incomprehensible)) ((because of cough))
xxx ((stammers)) example of the ((incomprehensible)) of mu
xxx x one and seven point one ((incomprehensible))(.3) [x
xxx IS31: [so:
xxx S1: so this is the ((incomprehensible))
xxx right?
xxx IS31: yes
xxx the- the
xxx the idea is just to use the ((incomprehensible))
xxx to estimate the (.)
xxx mean of the population
xxx and use the sample variants to estimate the
xxx variants of the population.
xxx ((mumbles))
xxx S1: the variants,
xxx you mean?
xxx IS31: yeah ((leans over to computer))
xxx S1: is (the mean)
xxx right?
xxx IS31: uh: yes (.2)
xxx S1: but
9:00
xxx (be are not) given the data
xxx (I don't know)°

xxx IS31: ((points to screen)) first you can calculate the mean
xxx of this (.) six number right?
xxx S1: ((nods)) altogether
xxx the-
xxx so whe-
xxx (n-not here)
xxx IS31: uh
xxx S1: (this homework nine)(.2)
xxx IS31: so first you get the: sample mean.
xxx S1: [oh
xxx IS31: [(and then you just)
xxx (you can add)
xxx S1: [then one two three four five six
xxx then divide it with
xxx um
xxx the previous (homework like we [had)
xxx IS31: [yea
xxx and uh
xxx you just use this number (.) a- a- as the estimation of the
xxx [(sample size)
xxx S1: [how bout this one?
xxx IS31: ah?
xxx which one?
xxx S1: ((pause))
xxx ((shows IS31)) this one
xxx x square
xxx IS31: oh this is
xxx uh:
xxx (matter) to calculate the variance,
xxx do you remember that I think?
xxx uh it's included in: chapter: (.) one or two or
xxx something.
xxx S1: the x square
xxx uh
xxx of these a- all numbers=
xxx IS31: =yea yea yea
xxx the square
xxx square of (ten) plus [square of
xxx S1: [and this is the x
xxx so this is
xxx what
xxx nine point=
xxx IS31: =yea
xxx you ((incomprehensible))
xxx S1: (over sixty)
xxx (how did we get fifty-eight
xxx IS31: hm:
xxx S1: ((points to screen)) this one it's x
xxx right?

xxx (only).
xxx so:
xxx IS31: yea
xxx S1: this is all fifty-eight
xxx IS31: yes
xxx S1: ((points at screen)) eighteen
xxx uh
xxx eighteen (.2) then
xxx uh
xxx twenty-nine,
xxx IS31: yea the sum of this six number is (.) fifty-nine.
xxx fifty-eight.
xxx S1: ((typing on calculator)) eight plus (.) nine plus (.)
xxx seven plus (.) eleven plus (.) thirteen (.1)
xxx yea
xxx it's fifty-eight
xxx IS31: hm:
xxx you ↑can use
xxx you c- also use this formula
xxx they are equivalent to each other
xxx but ((points to screen)) maybe this one is more easy
xxx to calculate.
xxx S1: ((nods))
xxx IS31: yea
xxx S1: yea
xxx this is easier
xxx IS31: e-either
xxx [either is OK
xxx S1: [uh yea
xxx cause if you
xxx uh
xxx figure it out <u>this</u> one so you get that number
xxx [then get that
xxx IS31: [yea yea yea
xxx S1: just as we use that from (the) before.
xxx IS31: mhm
xxx ok
xxx so th-this is a: (.) estimate[(.)tion of
xxx S1: [can I take a picture?
xxx ok the standard deviation
xxx S1: ((takes photo of screen with his phone))
xxx IS31: (homework)
xxx not,
xxx is due (.) today?
xxx S1: ((shakes head))
xxx I'm n[: ((thinking))
xxx IS31: [next week?
xxx S1: next week ((nods))
xxx next Thursday°

xxx ((11:16-11:40 no dialogue))
xxx S1: they have some (.) like math over here,
xxx like if you really don't know what's going on,
xxx if you're lost
xxx then so many things that (.1)
xxx IS31: m[:
xxx S1: [sometime it's like (.)
xxx it their mistake↑
xxx IS31: yes
xxx S1: but it's not like
xxx uh
xxx I was doing like ((incomprehensible)) yesterday like
xxx in the morning,
xxx like
xxx me and my friend
xxx I was like
xxx you know what
xxx this is kinda like really (.) hard
12:00
xxx then we went to bed like three o'clock
xxx I was like ((incomprehensible))
xxx IS31: ((laughs))
xxx S1: and he's like
xxx ok lemmie know what you get
xxx I was like ok°
xxx IS31: ah:
xxx [yea
xxx S1: [cause I had a class like 8:30 in the morning
xxx then he came in [and >was like<
xxx IS31: [well-
xxx S1: do you wanna go to see a TA?
xxx and then he crashed on the bed
xxx he said
xxx I'm so tired ((incomprehensible))
xxx IS31: ((laughs)) ok [so
xxx S1: [so it's like three of us
xxx like
xxx all studying together.
xxx IS31: ((turns to S2))
xxx S2: how do you do thirteen?
xxx IS31: ((reads question and mumbles to himself))
xxx oh (.1)
xxx so:
xxx this x is the sum of ↑mean
xxx and uh:
xxx do you know how to get the: (.2)
xxx m
xxx I mean mean of variants?
xxx of sum of mean?

xxx S2: m: ((points to page))
xxx IS31: uh yes
xxx yea
xxx so the (.) mean is (.)
xxx the same as the correlation bit
xxx right?
xxx S2: mhm↑=
xxx IS31: =so:
xxx [if that is ((incomprehensible))
xxx S2: [((incomprehensible))
xxx ((points at page))
xxx IS31: yea
xxx and the-
xxx uh:
xxx standard deviation of (.) x ((incomprehensible)) is
xxx the original standard deviation divided by (.) the
xxx square root of n.
xxx (.3)
xxx S2: um: ((points to page))
xxx [so you mean nine?
xxx IS31: [the original-
xxx yea.
xxx n is nine
xxx and the original standard deviation is (.1) fifty
xxx S2: ((writing))(.3) so° fifty over three?
xxx IS31: yea
xxx so you get the mean and the (.) standard deviation.
xxx and there is (a) normal distribution.
xxx so you can calculate this probability.
xxx use uh (.) from your:
xxx ((flips through textbook))
xxx ((shows page to S2)) like this
xxx like this
xxx if you have (use that) many times°
xxx S2: ((writes down notes))
xxx IS31: this is
xxx uh
xxx standard (normal distribution)
xxx S2: so: (.1)
xxx this one?
xxx five hundred (.) minus
xxx IS31: five hundred fifty
xxx S2: 550, (.) over this one
xxx right?
xxx IS31: yes.
xxx ((14:05-14:58 no dialogue))
xxx S2: was it?
xxx ((shows IS31 her solution))
xxx (this (.) answer?)°

15:00
xxx hm:
xxx IS31: ((looks over at laptop))
xxx ((pause))
xxx yea
xxx one point eight↑ and minus [((incomprehensible))
xxx S2: [((incomprehensible))
xxx IS31: yes ((nod))
xxx S2: ((pause))
xxx if it's (.) simple as nine,
xxx then probability that
xxx five of them
xxx then how do you do?
xxx IS31: uh:
xxx so (.2)
xxx ((reads question and mumbles))
xxx uh: (.2)
xxx ok so
xxx first you should find the
xxx the (probability) that *(.1)
xxx uh each person is (heavier) than (.1)
xxx five hundred sixty
xxx ((looks at S2 for confirmation))
xxx ((looks back down)) because we know the (original)
xxx distribution.
xxx the mean is five hundred and (.) [fifty,
xxx S2: [mhm
xxx IS31: standard deviation is (.) uh fifty.
xxx S2: mhm
xxx IS31: so you can calculate the probability that (.) one person
xxx is heavier than ((points at page)) this
xxx it's similar to part A
xxx just minus the five hundred fifty and divide it by
xxx fifty
xxx S2: uh
xxx what is it?
xxx IS31: uh: ((brings laptop closer))
xxx (you can see this)(.1) uh: (.1)
xxx so your part A
xxx you're just minus [the ((incomprehensible)) divided by the
xxx S2: [mhm]
xxx IS31: [standard deviation
xxx S2: [mhm
xxx IS31: so in this way it's similar.
xxx so you want to find the probability that x is greater
xxx [than this number so it gets to
xxx S2: [mhm ((nods))
xxx and then what does it mean
xxx like

xxx five=
xxx IS31: =uh
xxx ok
xxx so
xxx then even though the probability that each person is (.)
xxx heavier than this
xxx right
xxx S2: heavier than ((asking))
xxx IS31: uh
xxx f:ive hundred=
xxx S2: =sixty?
xxx IS31: yea
xxx so
xxx every person have the same probability
xxx S2: mhm
xxx IS31: and uh
xxx you have nine,
xxx so it’s
xxx uh
xxx binomial, (.) distribution ((gestures with hands))
xxx S2: ((nods))
xxx IS31: that every person have this probability (and they are
xxx not)
xxx so
xxx and that they are independent of each other
xxx S2: mm:
xxx IS31: so you can just use (the) binomial formula to
xxx calculate.
xxx S2: what if it’s
xxx like
xxx probably that six of them,
xxx or seven of them,
xxx IS31: eh:
xxx S1: [it’s the same?
xxx IS31: [it’s- it’s the same
xxx yea
xxx just nine (.) to five ((incomre[hensible))
xxx S2: [m:
xxx ((leans toward laptop))
xxx you subtract (.) mean and then
xxx IS31: divide by sta[ndard deviation.
xxx S2: [standard deviation°
xxx IS31: and get this p.
xxx so it’s just the p in binomial distribution.
xxx S2: hm:
18:00
xxx ((17:39-18:02 no dialogue))
xxx S1: I can use this formula too right?
xxx ((points to notebook))

xxx like this.
xxx ((pause))
xxx ((solves solution as IS31 watches))
xxx IS31: ↑what does this mean (.) fx
xxx S1: ((turns page))
xxx the standard deviation
xxx you can get it from
xxx ((points to page))
xxx IS31: uh:
xxx S1: the variants,
xxx
xxx IS31: a-actually
xxx this is to calculate the (.) standard deviant of some
xxx (.) distribution
xxx S1: ((nods while still looking down at notebook))
xxx IS31: I mean
xxx this is just a ((incomprehensible))=
xxx S1: =yea
xxx so we have to
xxx i- instead like
xxx if we wanna get this standard deviation
xxx right?
xxx [((incomprehensible))
xxx IS31: [yea I know I know
xxx b-but
xxx this is just
xxx in this case we just get no (assemble)↓
xxx (they are) only six numbers↓
xxx S1: ((nods))
xxx IS31: so:
xxx there's no fx
xxx we don't know fx.
xxx S1: ((still looks perplexed but nods))
xxx IS31: so:
xxx th-the:
xxx the formula just says that (.) we calculate the (.) sum of
xxx squares
xxx and minus (.) the
xxx oh
xxx how to say ((laughs))
xxx S1: [yea
xxx IS31: [t-the sum
xxx S1: [(the summation)
xxx IS31: [yea
xxx summation
xxx the sum
xxx the square of the sum
xxx S1: ok
xxx IS31: divided by n

xxx and divided b-
xxx so this is
xxx the:
xxx somewhere to calculate the sample variants
xxx S1: ((nods))
xxx IS31: sample variants is different from
xxx uh
xxx like population variants
xxx because even though fx
xxx S1: no
xxx uh
xxx yea
xxx we don’t know fx
xxx cause (.) go on there,
xxx like six point ten, ((points to IS31’s laptop))
xxx ((incomprehensible))°
xxx IS31: ((looks at laptop))
xxx oh
xxx [b-but in
xxx S1: [((incomprehensible))
xxx IS31: but in this case
xxx we know the fx is one over four for each x.
xxx so this is a distribution of (.1) the population.
xxx S1: got you
xxx so how do we then figure (it out this one))
xxx IS31: uh
xxx S1: ((lifts laptop and notebooks))
xxx (where the heck did I put my eraser now)
xxx ((pause))
xxx IS31: oh ((reaches down to pick up eraser))
xxx S1: thank you