Introduction To Loops

We are on to discussing something very significant, important and a novel concept for a beginner ok. What is our ultimate aim? To make our cat recite five tables ok? And now I am going to introduce you people on what is called a variable? Ok. That's what is the important significant thing for a programmer I was talking about. Go to data click on it, click on make a variable, it will ask you for a name put any name you want now here is a confusing part you can put your name or you can simply put a letter you can simply enter whatever you want here, a word also let me simply enter "S" to begin with and click on ok, you will get a S here, you saw the difference right? Correct? Now pull this aside and keep it here double click on it you will get a 0, a variable is always 0 unless otherwise initiated, what do i mean by that? I will tell you next, pull this this side it says set S to i will put 15 here which means when you double click on this S actually becomes 15, double click on this S we are getting 15 right? Also for your reference this shows, the variable value which is 15 here correct? Ok. Now when I, let me tell you what is change. When I say change S by 1 you will see what happens, double click on it S changes by 1 means S gets incremented by 1 ok? Double click on S you will see 16 now, you also see 16 here right? If you say change S by let's say 20 what will happen? The existing value 16 will get added by 20, which makes it 36. You see you must practice a whole lot of handling variables, exercises; you should try playing around just this thing, just this much. Make a variable and try to see what exactly happens? Let us do a small exercises now let's go to data create a variable, let me call it X. Create another variable, yes you can do as many as you want call it Y and you are done, you have X and Y correct? And let me set the values of X and Y, how do I set it? You go here, you will get all the current variables that you have defined X, I will set X to something, Y to something ok? Let me do that 10 and Y will be let's say some 12 ok? You still see that X is 0, Y is 0 correct? Let me also keep them here as you know, you can keep these here double click and then see what their values are? It is 0. That is because I am not double clicked on this the moment I double click on this, this two get executed so double click now X will be 10 Y will be 12 as is evident here and also double click 10, 12 perfect! Now what I want to do is add these two variables, how do i do that? Go to operators you have an addition operator here, bring that here and then go back to data, bring set here create another variable namely Z you see what I am doing Z gets created. What is Z? Double click 0 ok? I am going to set Z to be X+Y how do I do that? First put X here then put Y here and then say set Z to X+Y and bingo!! You see what's going to happen now? Double click on this Z is now 0 but double clicking on it will make X 10, Y 12, which already the case by the way and then will make Z become equal to Z+Y which is that should become 22 here, should become 22, let's see what happens? Come here and then double click boom! See Z became 22, Z now is 22 correct? So you can do a whole lot of such operations here ok? Let's do more for the sake of explaining things to you. I want to subtract also ok? Subtract what from what? Go to data subtract let's say X-Y ok? Double click on it you will get the answer but then if you want to set it on a new variable then you should use set let me call it a new variable, make a variable, let's say diff. Diff gets created please note variables need not necessarily be a letters it can even be words like this

strings like this. So I am going to say set diff to be the difference so bring it here and then double click on it, now my difference will be X-Y whatever X was whatever Y was the difference will be diff perfect it showing -2 and you want this to be sequentially executed simply keep it here, now tell me what happens if I make X as 35 and Y as 15 what will happen to Z? It will be X+Y, Z should become 50. X is 35, Y is 15 why is it showing 10 and 12 that is because I am yet to execute these things. Ok? Double click here and all these values will change. X should become 35, Y should become 15, Z should become sum of X and Y which is 50 and diff should become the difference which is 35-15 what is it? 20. Correct? We must see 35, 15, 50 and 20 let's see if this is visible? Double click boom! Yes perfect 35, 15 50 and 20. So now you have understand how to set a variable to a value, perform a few operations assign the values to a new variable. Ok? Go back to operators explore all these things look at data you can create variable and use them to do whatever you want. So what was our mission? We wanted our cat to recite the five tables, how do we go about doing that? Let's see. First let me go to data and create a variable let me call it 't' 't' for tables multiplication tables ok? And then I want to set 't' to 5 and then I want t to change by 5 every time ok? And I want my cat to say these, how do I make her say this? Say hello so say go to data take t and out that here so you are making t=5 you change t by 5 no! I think before that we should make her say t and then you can change t by 5 and then make her say t once again how do i do that? Simply copy paste say t once again ok? Double click 't' set to 5 and she says 't' 5 and then changes 't' by +5 and then says 't' but this happen so fast you cannot see a five come here, let me try it once again. Oh see you can't even see because it gets executed so quick so what will I do? I will go to control and I will say wait one second, with this you will see that a 5 comes here, you wait for a second so that you see it and then t changes by +5 and then 't' is again displayed which is 10 let me see this, double click huh see 5 comes and then 10 comes after a seconds time, double click 5 and then 10 so what should I do? I want this to repeat, what to repeat? Wait for one second change 't' by 5 and say 't'. Right click on this and say duplicate you will get the same thing keep it down; this will now be 5, 10, 15 if you know what i mean. Correct? Let me see double click 5, 10, 15 good my cat can say 5 tables up to 5*3 is 15. Let me make her say up to 50 5*10 is 50 how do i do that? Keep copy pasting this below, right click duplicate, means you will get a duplicate of that keep pasting this below like this duplicate down, duplicate down, duplicate down, I have not kept a count of how many times I am saying let me double click and check. 5, 10, 15, 20, 25, 30, 35, 40 this is a dumb cat as I told you she will only do what is being instructed, she is not intelligent enough to understand that we want up to 50 and she must go up to 50. Unless and otherwise specified she will not do it. So what need to be done now? Yes i must duplicate this just a couple of times and there I am, this makes it 10 says of 't' which changes by 5 every time and this must make our cat recite the 5 tables from 5 times 1 is 5 up to 5 times 10 is 50 so basically you see 5, 10, 15, 20 up to 50 let see if she does it! Double click 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 hip hip hurray!!! There you are so we made our cat recite the 5 table. So we made her recite the 5 table from 5, 10, 15 up to 50 I have a feeling there is a better way to do this and what is that better way? Can you think? Can you try before proceeding any further? It will be a good exercise for you all. Now if not I am always there to help you, maybe we want to pause here and then try it to do it all by yourself, if not lets continue. Go to control and then look at this repeat, keep it here and then simply take, let me duplicate this I don't want anything beyond

this ok? Let me delete this I only want I want a set't' to 5 to begin with and then repeat this 9 times, repeat what? I want to say't' first 5 is being said wait for about one second ok? And then again let me delete this i want the cat to say t after changing t by 5 ok? So see what i am going to do now change t by 5 and then say't' and wait for one second and I am done! Let me delete this and try explaining what I just did. 't' will be 5, cat will say 5 we wait for one second and I then repeat this nine times ok? Which means i change t by 5 which means 't' become 10 I say 10, I wait for one second and this happens nine times which means i will go on and recite the entire thing, correct? The same thing the same thing can be done in such a small piece of code, do you see the power of this repeat loop here but let's see whether it does or not? Double click and there we go 5, 10, 15, 20, 25, 30, 35, 40, 45, 50 yes we did exactly this bigger code equivalent by writing a small code correct? Ah is there any way I can even better this code let me try bettering this code. All of you observe, i duplicate this I go here I simply want to repeat something ten times repeat what ten times? I want the cat to say five first so for that t=5 and then I want this to be done inside, I don't want any of these things, let me delete these things see what this code does first sets't' to 5 and then repeats say t change by 5 and then waits for a second let me see whether it does what it is suppose to do. Double click 5, 10 so on let see whether its stops at 50 yes 35, 40, 45, 50. You are just wondering why exactly i did this, this looks exactly similar to this even does what this does but this will give me enormous amount of flexibility, and what is that. See what I am going to do I am gonna do small magic for you all. Click on make a variable and create 'any' I will type any here, 'any' is now a variable ok? And now I will set t to not 5 but any and I will change 't' by not 5 but any and i will now set any to let's say 7 pause the video observe the code, what exactly this code does? And then un pause play the video and see if you are right or not? Ok. I suppose you all pause the video and gave your guess now double clicking on this will simply give me 7 tables isn't it? How? Let's see whether it gives me 7 tables or not. Double click 7, 14, 21, 28, 35, 42, 49, 63 and 70 this gave me 7 tables that because whatever was given here I tried replacing 5 by another variable which I could flexibly change, what do I mean by that? If you make this eight or nine let's say it gives me the table for nine look at this double click and i will get tables for 9 right? 27, 36, 45, 54, 63, 72, 81 and 90 that is basically 9 table in fact you can even make it recite 19th table which by the way I never learnt as a kid I knew tables only up to 9, I dint even know 12 table but let me see whether it can recite 19 table very unfortunately I will not be able to verify given that I don't know by heart so this is going on I know we should stop on 190 let me see. 171, 190 perfect! So I now can make the cat recite any table which even I dint learn as a school kid.