

wyx-uonp-pvi - 2020-08-19

Dhiraj Jadhav - 08:15

Yeah, Hello friends we'll start now yesterday due to this connectivity issue I couldn't complete the things so I try today. Just to connect I'll share something.

Dhiraj Jadhav - 08:18

Yeah, I hope the screen is visible to you all. We are not going in deep about this assembler part because it's not. A interview of our syllabus, but we'll see in brief all those steps which actually contributes to a design of a similar.

Dhiraj Jadhav - 08:19

So these few points are required while designing it. and the same is also required why we are just observing this things right now because we want the same. More or less the same in design of compiler also. It's simply a translator. So word doesn't matter whether it is a similar or compiler.

Dhiraj Jadhav - 08:20

So if we talk about a multipass of environment then pass one is about symbol table and literal table that. We saw yesterday. Have you seen it yesterday? literal tables symbol table and

 ASHWINI MAMULWAR - 08:20

Yes.

Dhiraj Jadhav - 08:24

Yeah, so I think few examples we also We also seen yesterday have this symbol table and literal table are. Generated how the program is then mapped to a symbol and literal table. Yeah, so that is actually defined in the first verse. Of the LC something, but the location counter. We'll see what location counter is location countries nothing but assigning an address to each the instruction that is written on each line. So that is a part of location counter and it is based on. the size of world so it is again based on a simpler architecture somewhere. It is 3 bytes somewhere. It is 4 bytes. depends on the architecture itself And then the table is retained till past 2. and I assume that you know, what pseudo operations mean and You already dated writing in and second year. and then literals and then in past two, actually the object is generated out of those instructions, which actually Fade to a machine and machine directly runs it. using the loader so out of each statement written on each line with respect to a location counter which assigns the address to each of the instruction. Generates a relevant object code that object code is actually then fed into a sequence. appended into a sequence which Which then generates an output letter? So these many things actually are created in password some databases. Main thing is our input source program, which is now considered as a stream of characters. Then the location counter which assigns an address for each instruction. Then what are the machine related operation? What are the pseudo operations similar table and internal table? And everything is then passed on for next. phase and each then combine together generates an output. Yeah. What are the less you will see in this format? Source module there are multiple Source models if there are libraries used. Then a similar works and it creates an object code and then an object codes a different object codes and

linked. some of them are linked at during assembly itself and some are at runtime. And then loader does its job? So if we consider this a small program now, you know the format right? It's a label then mnemonic. And then of code operands right and then comments. So I think there are no comments here. It's only John. It's it's a label. The start is a mnemonic and zero is a operand. In that fashion the code is mentioned here.

Dhiraj Jadhav - 08:27

And I think we also discussed yesterday what DC and DS mean. right So just to revise again this DC and Es are articulated statements. There are imperative and declarative statements in an assembly level programming languages. is called is and we Is a imperative statement? and declarative language These are some words used. What do we provide actually an imperative statements are nothing but the commands that will perform some operations. and declarative languages nothing but Declaration of variables Declaration of things which A program will use later, which a command can use later. So in The declarative language itself. There are two more instructions used one is one is just creating a variable and another instruction is used to create a variable along with assigning a default value to it. So this DS at the bottom is actually just creating a variable. Again, the variable name is stamp. This DC. However created variable and assign the value to it. So this 4? this variable 4 having the value 4. and

those variables are used throughout. Okay, so yesterday we also saw there is something required beforehand while dealing with a similar you must have a Sound knowledge of that microprocessor environment. For which an assembler is created. resistors their object codes and the mode of operation the architecture of that particular microprocessor means it is 32 bit or 62 bit or 16 bit microprocessor. Those things are required beforehand while actually developing an assembler.

Dhiraj Jadhav - 08:28

Yeah. So pass one is actually creating

Yeah. So past one is actually creating a symbol table, right? So here this symbol table is actually looking after the symbols here. So what are the symbols here? Yeah, so this five four this m. Are the symbols? And those symbols then maintain into a symbol table.

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Dhiraj Jadhav - 08:29

and some relative addresses given here if you see this 0 4 8 12 16 20 each of this is separated by 4 bytes. Right, or you can say 4 words. This is actually a location counter. An address is assigned. along with creation of symbol Yeah. And then this is past two in which actual operations and their objects are created. It is just illustrative purpose. So what next actually?

Dhiraj Jadhav - 08:29

today I think time table is changed. Do you know it? There is one lab today two to four. Let me check. Just a word of caution for you all.

Dhiraj Jadhav - 08:31

The Erp which we are using actually just work on the student who registered for the course registered for the semester only those role numbers are visible to us while marking your attendance. So for us it is very difficult to maintain everything. So request you to do a registration at the earliest. I think college has all the policies to have your registration done at the earliest.

Dhiraj Jadhav - 08:31

I think this registration requires YouTube pay some amount and College is very happy to have this payment in an installment format.



ADITYA PANGAONKAR - 08:31

Yes, yes.

Dhiraj Jadhav - 08:31

but one must one must give a mandate on which date how much amount a student can pay. Or parent can pay for it. So if it is done if the registrations are done, then a flawlessly we can perform the marking your attendance and then all the assessment heads.

Dhiraj Jadhav - 08:31

because



BALAJI PADAMWAR - 08:32

as answer

Dhiraj Jadhav - 08:32

sooner MSC will be there in the next month itself. tentatively so we are also we are also abide to that. That's why. Things are going in a little faster way. Yeah, so let me check. UIC batch 3. Hope you got the batch details.

Dhiraj Jadhav - 08:33

Yes or no? Okay, so that particular batch wise you attend. Today's a lab session. Yeah, so in today's lab. I you you already did maximum or tassim which which language you used while in digital programming languages. digital logic or microprocessor Maxim or tassel

Dhiraj Jadhav - 08:35

For TYC, whatever link you joined for CD will be same for Theory and lap. Okay, so that is a half briefly all about an assembler. There are features of similar which which is machine dependent and which is machine independent, but actually discussing it here will just create a complexity and message you up. That's why I'll discuss this letter.

Dhiraj Jadhav - 08:36

Now let's let's move ahead on the topic of linker in which one word is. A very frequently used relocation relocatable code relocation relocatable code. This kind of word now will understand. What is it actually? the location counter that we just saw is actually just assigning it. And address to each instruction.

Dhiraj Jadhav - 08:37

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But we have the libraries in line while using some complex functionalities or some complex commands. for our program and that is also a deal by the location counter and assigned some address to it. But more or the less itself separate Library. And every time if each program is given an address same it will just messes up the execution part and that's why this relocation happen which is done at linking phase. This relocation is nothing but just changing its address and

Dhiraj Jadhav - 08:38

And just moving the whole address space to some other address space. Otherwise it will just overwrite. It will just override the earlier instructions. and program might behave abnormally and there the Linker comes into a picture. so it's it's a simple program in a system which actually helps to link an object modules.

Dhiraj Jadhav - 08:39

of a program into a single object file, so right take an example of C language in which we we use pretty processors stdi dot h So it's a separate file and it will be it will be considered as one. Program along with the program that is written by user. Yeah. So these libraries are also linked these libraries are also compiled.

Dhiraj Jadhav - 08:40

along with the program and yes, why relocation is required because the compiler or a simpler blindly signs the address Okay, let's assume it blindly assigns the address from 0 and then with respect to the instruction and the work it is going to perform. It assigns the next address to an next instruction. so

Dhiraj Jadhav - 08:42

here because because a single copy shared of those. linking code Which may override something during any time in in the execution? Yeah, so That is all about. today's session Let me just brief you what we will see tomorrow. There are many things which we are now skipping because it will just simply make the things complex. Like like an algorithm of an assembler.

Dhiraj Jadhav - 08:43

Machine independent machine dependent features. Yeah, so that part will cover later when such topics are detailed explained and described to you. So tomorrow we'll again see some Linker Concepts. And then we'll go ahead with loader. And after that, we'll jump into a Pandora box of compiler. So that's it for today. Let me check if