

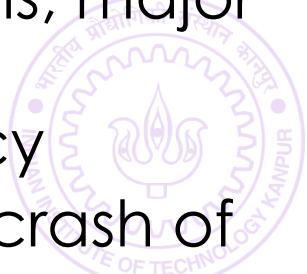
We will miss the Marvels of Mr C

ESC101: Fundamentals of Computing

Purushottam Kar

Announcements

- Joint tutorial for B1 and B5, Friday Nov 16th 12PM in L19
- End-sem Theory exam Nov 25th 9AM – 12noon
- AT final presentations Nov 26th – 29th (all welcome)
- Proration Alert
 - All students getting prorated would've received an email last night. If you applied for proration but didn't receive an email, **contact me now!**
 - Only medical reasons entertained for proration of theory exams, major quizzes, lab exams – as per announced policy on website
 - Students dropping AT prorated according to announced policy
 - Students unable to attend replacement lab due to the Prutor crash of Sep 11 prorated



Working in Linux Environment

3



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Can store your stuff in files



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File names have *extensions* telling us what kind of a file it is



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hello.c, pointers.c etc



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Files arranged in folders/directories

Directories can contain files as well as other directories

Directories are used to organize your files neatly



Moving Around Directories

4



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of Computing

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pwd (print working directory) – print name of the directory you are currently sitting inside



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cd .. (change to parent directory) – move to the directory that contains the current directory



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cd <dirname> (change directory) – move to the directory with name dirname

cd .. (change to parent directory) – move to the directory that contains the current directory

cd ~ (jump to home directory) – jump directly to home directory no matter what the current working directory



Directories and Files

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mkdir <newdir> (make directory) create a directory with name *newdir*. Make sure a directory with this name does not already exist



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rm -r <dirname> remove the directory *dirname* (and all that it contains), recursively, even if the directory is not empty. **WARNING:** use with care.



Creating and Running C programs 6



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Your microprocessor cannot run C programs directly. It can only run what is known as an *executable file*



Compilation and Execution

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C files and Executable Files

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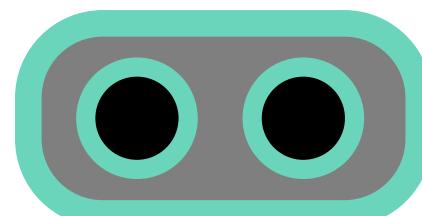
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400547:	8b 45 fc	mov -0x4(%rbp),%eax	
40054a:	89 c6	mov %eax,%esi	
40054c:	bf f4 05 40 00	mov \$0x4005f4,%edi	
400551:	b8 00 00 00 00	mov \$0x0,%eax	
400556:	e8 a5 fe ff ff	callq 400400 <printf@plt>	; Mr C is calling the printf function here
40055b:	b8 00 00 00 00	mov \$0x0,%eax	
400560:	c9	leaveq	
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400562:	66 2e 0f 1f 84 00 00	nopw %cs:0x0(%rax,%rax,1)	
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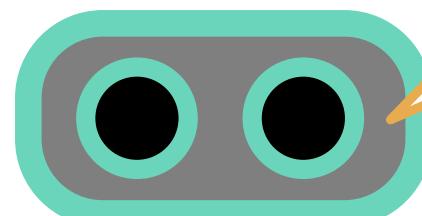
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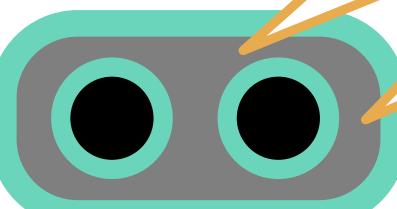
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<p>Your microprocessor cannot execute a C program so I convert your C program to an executable</p>	
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Linux and Windows

9



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Architecture, Operating Systems, Compilers, Theory, Algorithm Design, Databases, Web Programming, Machine Learning and AI, and many more



There is no Mr C ☺

11



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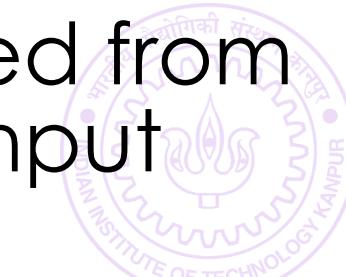
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When functions are invoked, the control gets passed from one function to another along with arguments as input



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12



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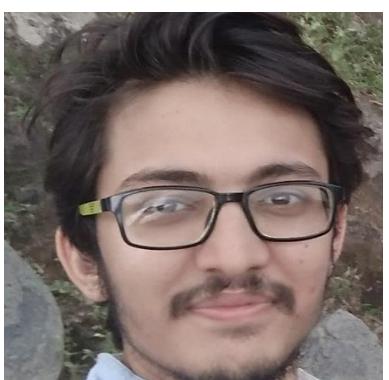
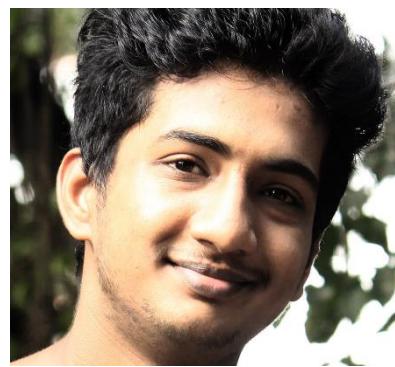
Can keep using Clang as well (need to install it though) – gcc is always available on Linux computers

Windows computers need to install a compiler (VS etc)



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