

Tutorial & Laboratory

Programming & Data Structure: CS11001/19001

Section - 4/D

DO NOT POWER ON THE MACHINE

Department of Computer Science and Engineering

I.I.T. Kharagpur

Spring Semester: 2013 - 2014 (16.01.2014)

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Submission of an Assignment

Send the C program for evaluation by `ftp` to the machine of address `10.5.17.186`

Laboratory Evaluation

- Correctness of program.
- Regularity of work.
- Programming style.
- Quality of solution etc.

Note

If program plagiarism is detected, both the source of the copy and the destination of the copy will be awarded minus ten (-10) in that assignment.

A Few Points

- Use proper **file name**.
- Use proper **header** to every file.
- Use correct prototype for functions e.g. **int main()**.
- Properly indent statements in a program.
- Use **-Wall** compiler option.
- Print the input data.

A Few Points

- Keep space between printed values. It should be readable.
- Use meaningful variable names.
- These are small programs, do not write very long and useless comments. Do not mixup code and comment.

A Few Points

- Avoid **global variables**, **static variables**, useless parenthesis, braces and code.
- Test your program properly before you send for evaluation.

Program Header

Each program should have a **header** containing **Section name (4/D)**, **Machine No.**, **Roll No.**, **Name of the student**, **Assignment No.** and a **short description** of the assignment.

File Name Convention

The file name will be **DmmNN.c**, where 'D' is for the section 4, 'mm' is the machine number and 'NN' is the assignment number e.g.

D0601.c is the C program corresponding to the 1st assignment of a student from the section 4, working on the machine number '06'.

Submission by ftp

```
$ ftp 10.5.17.186
Connected to 10.5.17.186.
220----- Welcome to Pure-FTPd ----
220-You are user number 1 of 50 allowed.
220-Local time is now 07:54. .... 21.
220-IPv6 connections .....
220 ... disconnected .. inactivity.
Name (10.5.17.186:..): pds
```

Submission by ftp

```
331 User pds OK. Password required
Password: pds04
230-User pds has group access to: pds
230 OK. Current restricted directory is /
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> cd assignment1
250 OK. Current directory is /assignment1
```

Submission by ftp

```
ftp> put D0601.c
local: D0601.c remote: D0601.c
200 PORT command successful
150 Connecting to port 47093
226-File successfully transferred
226 0.001 seconds .. 39.00 Kbytes ..
27 bytes sent in 0.00 secs (1098.6 kB/s)
ftp> bye
21-Goodbye. ....
221 Logout.
$
```

A Program Header

```
/*  
*  
*      Section : D/4  
*  
* M/c No. : 06,      Roll No. : 20MB3007,  
* Name : Aryabhatta,  
* Assignment No. : 01,  
* Description : Program to calculate a  
*              given function.  
*  
*****/
```

Assignment I

Write a C program that reads two positive integers `sml` and `lrg`. The program has following four subtasks. [Marks: 2 + 4 + 4 + 5]

Task I

The input may be in any order, but after this stage the smaller data should be in `sml` and the larger data in `lrg`.

Task II

Compute and print the value of `smllrg` (`sml` raised to the power `lrg`) using a `while`-loop (without using any mathematical library function). Let the computed value be `val`.

If `sml = 4` and `lrg = 5`,
then `val = 45 = 1024`.

Task III

Compute the sum of the decimal digits of `val` and print it.

If `val = 123` the sum is $1 + 2 + 3 = 7$.

Task IV

Print a triangular pattern (as shown in the example) with **lrg** number of rows and columns.

Example $\text{lrg} = 4$

```
*  
* *  
* * *  
* * * *
```

Assignment II

Write a C program that reads a set of positive integers (at least one of them is > 1). It prints the largest prime number that divides any one element of the data set. The number of elements in the data set is not known a priori. Also print a data that is divisible by the largest prime. [You should not use any **array**] [Marks: 5]

Example

Input: 56, 117, 24, 63

Output: 13 | 117.