

# Programming and Data Structures Lab

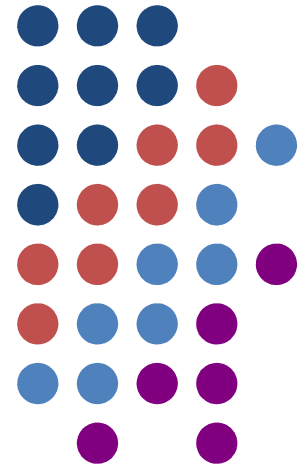
## Section 15



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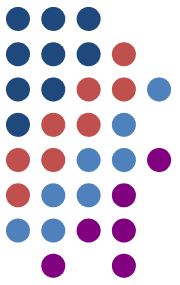
<http://cse.iitkgp.ac.in/~aritrah/course/lab/PDS/Autumn2019/>

# Teaching Assistants



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# Rules



- Class Timings: Friday (2:00PM-6:00PM)
- Venue: PC-Lab-1, CIC (Takshashila)
- All assignments to be done in the lab and submitted before the lab concludes
- Any attempts to copy will involve severe penalties
  - 0 for the assignment copied for **BOTH** the person copying and the person copied from
  - Any repeat offense will result in **deregistration** from the course



# Marks Distribution

- 2 Lab-Test Modules –  $2 \times 50 = 100$ 
  - Lab Test 1 (06-Sep-2019) – 50
  - Lab Test 2 (01-Nov-2019) – 50
- 11 Assignment Modules –  $11 \times 20 = 220$ 
  - will be scaled down to 100 marks.
- Total Marks (out of 100)
  - 50% from Assignment-Marks
  - 50% from LabTest-Marks

# Computing Environment



- Dell Desktop Systems
- Ubuntu operating system
  - linux operating system for your purpose
- Text editor: **gedit**
  - For typing in your C program
- C language compiler: **gcc**
  - For compiling the C program



# Logging in to the System

- Username: **sec15**
- Password: **sec15@123**
  - **Change it with your own new password**
    - **Open terminal and type *passwd***
    - **Give old/existing password**
    - **Then give your new password**
    - **Confirm by giving the same again**
- You should see a new screen



# Basic Program Execution

- Writing your program
  - Open a text editor (gedit)
  - Open a new file
  - Type your program in the text editor
  - Save it
- Compile and run your program
  - Open a terminal
  - Call gcc to compile and then run



# Writing the C Program

- Type in the following C program exactly as it is in the file, and then save it

```
/* The first C program */  
#include <stdio.h>  
int main( )  
{  
    printf("Welcome to IITKGP\n");  
    return 0;  
}
```



# Compiling and Running Your C Program



- In the terminal window, at the \$ prompt, type  
**gcc first.c**
- If the compilation is successful, you should see the \$ prompt come back with no errors
- Run the program by typing  
**./a.out**
- You should see **Welcome to IITKGP** printed out



# Making a Mistake

- Remove the **)** (right bracket) after main

```
/* The first C program */  
#include <stdio.h>  
int main(  
{  
    printf("Welcome to IITKGP\n");  
    return 0;  
}
```



# Configuring the Program

- Save the file **again**
- Compile the file **again**
- You will see an error printed out:  
`first.c:4 : error: Syntax error .....`
- Go back and correct the error
- Save the file **again**
- Compile the file **again**
  - Should show no errors this time
- Run the file and verify that **Welcome to IITKGP** is printed



# IMPORTANT

- Every time you change something in the file, you must
  - **Save it again**
  - **Compile it again**
- This will generate a new executable **a.out** with the changes



# IMPORTANT

- Every program must start with a comment containing
  - Section No.
  - Machine no.
  - Roll No.
  - Name.
  - Assignment No.
  - A one line description of the assignment



# Example Header

```
/******  
* Section : 15  
* Machine No. : N  
* Roll No. : 19CS100XY  
* Name : name surname  
* Assignment No : 0  
* Description : first C program  
*****/
```



# First C Program

```
/******  
* Section : 15  
* Machine No. : N  
* Roll No. : 19CS100XY  
* Name : name surname  
* Assignment No : 0  
* Description : first C program  
*****/
```

```
#include <stdio.h>  
int main( )  
{  
    printf("Welcome to IITKGP\n");  
    return 0;  
}
```



# Some Basics

- Your programs will be stored in **files**
- Files are stored in **directories** (folders in windows)
- Directories will contain other **subdirectories** and **files**
- You may create a separate subdirectory for each of your assignments so that you can find them easily
  - **But this is not a requirement for this lab, so if you want, just keep all your files in the same directory**



# Some Useful Linux Commands



- **pwd** – shows the current directory you are in
- **ls** – shows the contents (Files and subdirectories) of the current directory
- **mkdir X** – creates a subdirectory named **X** under the current directory
- **cd X** – changes the current directory to the directory named **X** under it

# Creating a Practice Directory



- On the \$ prompt, type **mkdir practice**
- Type **ls** to verify that the new directory is created
- Change to the new directory: type **cd practice**
- Type **pwd** to verify that you are in the new directory
- We will now use this directory to store our practice files

# Thank You!

