

برای کامپایل کردن کد C در لینوکس میتوانیم از کامپایلر gcc استفاده کنیم. (کامپایلر های دیگر نیز وجود دارد مانند clang, llvm) در اکثر توزیع ها این کامپایلر به طور پیش فرض نصب شده است. برای نصب آن به ترتیب مراحل زیر را پیش میرویم:

```
mohammad@Nikooo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5 on P main [?] via C v13.1.1-gcc as took 1ms
└─ # sudo apt install build-essential

mohammad@Nikooo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5 on P main [?] via C v13.1.1-gcc as took 1ms
└─ sudo pacman -S gcc
warning: gcc-13.1.1-1 is up to date -- reinstalling
resolving dependencies...
looking for conflicting packages...

Packages (1) gcc-13.1.1-1

Total Installed Size: 181.74 MiB
Net Upgrade Size:      0.00 MiB

:: Proceed with installation? [Y/n]
```

دستور اول که نوشته شده (کامنت شده) برای نصب در اوبونتو است (من از توزیع garuda استفاده میکنم) در خط بعدی دستور برای نصب gcc در توزیع های arch based است. چون از قبل gcc نصب بوده دوباره آنرا نصب میکند.

```
Packages (1) gcc-13.1.1-1
Total Installed Size: 181.74 MiB
Net Upgrade Size: 0.00 MiB

:: Proceed with installation? [Y/n] Y
(1/1) checking keys in keyring [=====] 100%
(1/1) checking package integrity [=====] 100%
(1/1) loading package files [=====] 100%
(1/1) checking for file conflicts [=====] 100%
(1/1) checking available disk space [=====] 100%
:: Running pre-transaction hooks...
(1/1) Performing snapper pre snapshots for the following configurations...
Failed to set locale.
=> root: 181
:: Processing package changes...
(1/1) reinstalling gcc [=====] 100%
:: Running post-transaction hooks...
(1/7) Arming ConditionNeedsUpdate...
(2/7) Foreign/AUR package notification
autovpn-glt r18.28b1a87-1
rootactions-servicemenu 2.7.3-1
(3/7) Orphaned package notification...
geocode-glib 3.26.4-3
kimageannotator 0.6.1-1
libvisual 0.4.2-1
mcfly 0.8.0-1
run-parts 5.5-1
(4/7) Checking for .pacnew and .pacsave files...
.pacx files found:
/etc/shells.pacnew
/etc/default/grub.pacnew
/etc/mkinitcpio.conf.pacnew
/etc/pacman.d/mirrorlist.pacnew
/etc/plymouth/plymouthd.conf.pacnew
Please check and merge
(5/7) Updating the info directory file...
(6/7) Performing snapper post snapshots for the following configurations...
Failed to set locale.
=> root: 182
(7/7) Syncing all file systems...

[mohammad@nikooo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5 on P main [?] via C v13.1.1-gcc as  took 1m44s]
$ gcc --version
gcc (GCC) 13.1.1 20230429
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This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

[mohammad@nikooo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5 on P main [?] via C v13.1.1-gcc as  took 3ms]
$
```

و بعد از نصب میتوانیم نسخه آنرا نیز مشاهده کنیم.
کدی که نوشته‌ایم به شکل زیر است:

```
1 #include <stdio.h>
2
3 int main() {
4     printf("OS LAB");
5     return 0;
6 }
7
```

برای کامپایل و اجرای آن از به ترتیب از دستورات زیر استفاده میکنیم:

```
gcc name_file.c -o output_name
```

```
./output_name
```

```
mohammad@vikoo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5/1 on P main [?] via C v13.1.1-gcc took 1ms
λ ls
.rw-r--r--@ 67 mohammad  4 May 22:14 @ code_c.c

mohammad@vikoo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5/1 on P main [?] via C v13.1.1-gcc took 4ms
λ gcc code_c.c -o output

mohammad@vikoo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5/1 on P main [?] via C v13.1.1-gcc took 30ms
λ ls
.rw-r--r--@ 67 mohammad  4 May 22:14 @ code_c.c
.rwxr-xr-x@ 15k mohammad  4 May 22:20 @ output

mohammad@vikoo in repo: OSLab-Spring2023/HW1/OSL-HW-1-G-5/1 on P main [?] via C v13.1.1-gcc took 7ms
λ ./output
OS LAB
```