

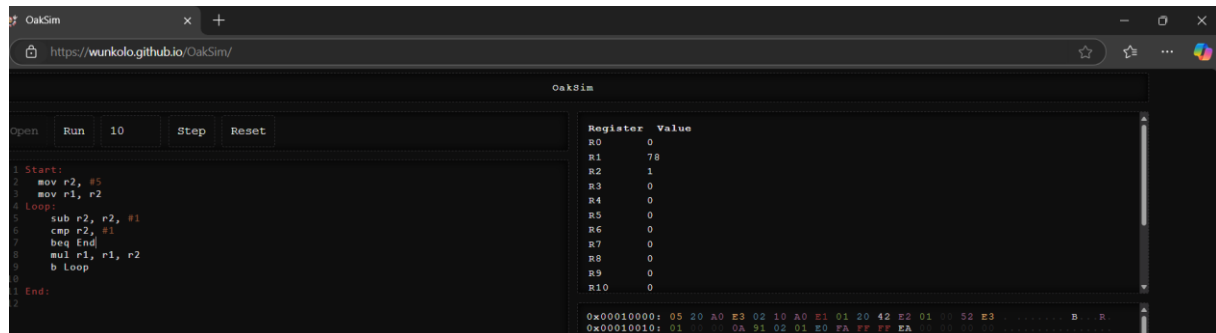
# Template Week 4 – Software

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Used chatcpt only for better English writing and getting some information about assignment 4.3

## Assignment 4.1: ARM assembly

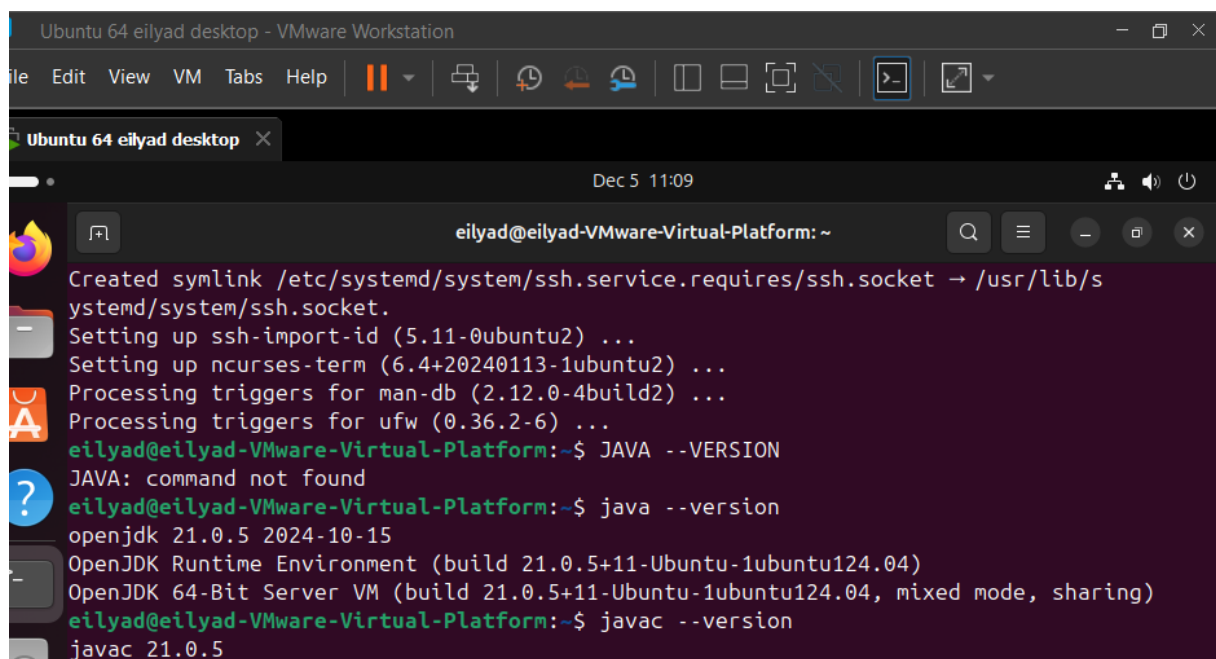
Screenshot of working assembly code of factorial calculation:



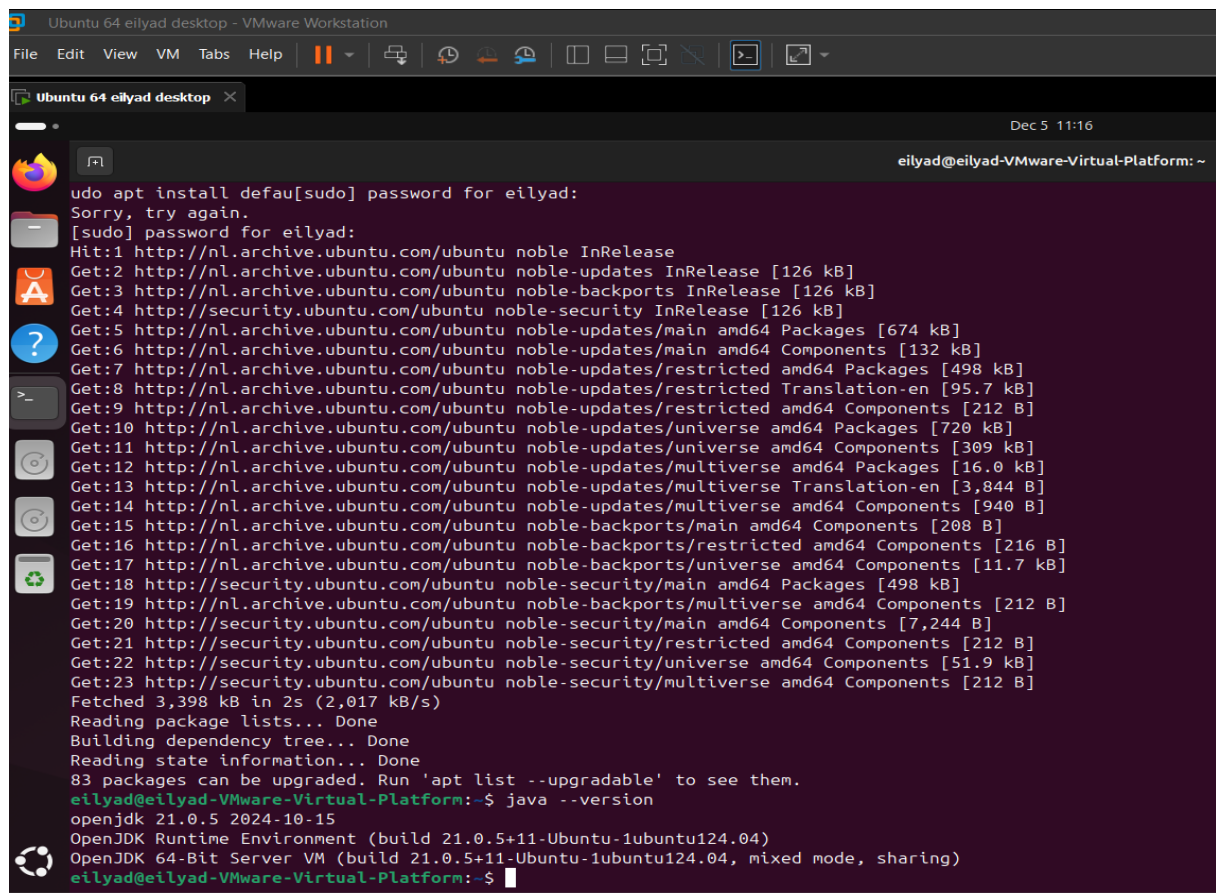
## Assignment 4.2: Programming languages

Take screenshots that the following commands work:

`javac --version`



java -version



```
Ubuntu 64 eilyad desktop - VMware Workstation
File Edit View VM Tabs Help
Ubuntu 64 eilyad desktop x
Dec 5 11:16
eilyad@eilyad-VMware-Virtual-Platform: ~
udo apt install default-jdk password for eilyad:
Sorry, try again.
[sudo] password for eilyad:
Hit:1 http://nl.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://nl.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:3 http://nl.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:4 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:5 http://nl.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [674 kB]
Get:6 http://nl.archive.ubuntu.com/ubuntu noble-updates/main amd64 Components [132 kB]
Get:7 http://nl.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [498 kB]
Get:8 http://nl.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [95.7 kB]
Get:9 http://nl.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Components [212 B]
Get:10 http://nl.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [720 kB]
Get:11 http://nl.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [309 kB]
Get:12 http://nl.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [16.0 kB]
Get:13 http://nl.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3,844 B]
Get:14 http://nl.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [940 B]
Get:15 http://nl.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]
Get:16 http://nl.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]
Get:17 http://nl.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [11.7 kB]
Get:18 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [498 kB]
Get:19 http://nl.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]
Get:20 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [7,244 B]
Get:21 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Components [212 B]
Get:22 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [51.9 kB]
Get:23 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Components [212 B]
Fetched 3,398 kB in 2s (2,017 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
83 packages can be upgraded. Run 'apt list --upgradable' to see them.
eilyad@eilyad-VMware-Virtual-Platform:~$ java -version
openjdk 21.0.5 2024-10-15
OpenJDK Runtime Environment (build 21.0.5+11-Ubuntu-1ubuntu124.04)
OpenJDK 64-Bit Server VM (build 21.0.5+11-Ubuntu-1ubuntu124.04, mixed mode, sharing)
eilyad@eilyad-VMware-Virtual-Platform:~$
```

gcc -version

```
Ubuntu 64 eilyad desktop - VMware Workstation
File Edit View VM Tabs Help
Ubuntu 64 eilyad desktop x
Get:20 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components
Get:21 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Comp
Get:22 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Comp
Get:23 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Comp
Fetched 3,398 kB in 2s (2,017 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
83 packages can be upgraded. Run 'apt list --upgradable' to see them.
eilyad@eilyad-VMware-Virtual-Platform:~$ java --version
openjdk 21.0.5 2024-10-15
OpenJDK Runtime Environment (build 21.0.5+11-Ubuntu-1ubuntu124.04)
OpenJDK 64-Bit Server VM (build 21.0.5+11-Ubuntu-1ubuntu124.04, mixed mode, s
eilyad@eilyad-VMware-Virtual-Platform:~$ gcc --version
gcc (Ubuntu 13.2.0-23ubuntu4) 13.2.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.

eilyad@eilyad-VMware-Virtual-Platform:~$ sudo apt update
sudo apt in
Hit:1 http://nl.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://nl.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://nl.archive.ubuntu.com/ubuntu noble-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu noble-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
83 packages can be upgraded. Run 'apt list --upgradable' to see them.
eilyad@eilyad-VMware-Virtual-Platform:~$ gcc --version
gcc (Ubuntu 13.2.0-23ubuntu4) 13.2.0
Copyright (C) 2023 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

python3 --version

```
eilyad@eilyad-VMware-Virtual-Platform:~$ python3 --version
Python 3.12.3
```

bash --version

```
Ubuntu 64 eilyad desktop - VMware Workstation
File Edit View VM Tabs Help
Ubuntu 64 eilyad desktop x
Setting up libgtk-3-0t64:amd64 (3.24.41-4ubuntu1.2) ...
Processing triggers for shared-mime-info (2.4.4-1) ...
Setting up udev (255.4-1ubuntu2.4) ...
Setting up glib1.2-mutter-14:amd64 (46.12-1ubuntu9.24.04.4) ...
Setting up gnome-initial-setup (46.1-1ubuntu9.24.04.1) ...
Setting up gnome-control-center (46.1-1ubuntu9.24.04.1) ...
Processing triggers for libcolor-libs (0.17-22) ...
Setting up gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for rsyslog (8.2312.0-3ubuntu9) ...
The following files were found in /etc/default:
Setting up glib1.2-gtk-3.0:amd64 (3.24.41-4ubuntu1.2) ...
Setting up ubuntu-settings (24.04.5) ...
Setting up gnome-shell-extension-appindicator (58-1ubuntu24.04.1) ...
Setting up software-properties-gtk (0.96.49-1) ...
Setting up update-manager (1:24.04.5) ...
Setting up gnome-shell-extension-ubuntu-dock (99ubuntu2) ...
Processing triggers for initramfs-tools (0.142ubuntu2.4) ...
update-initramfs: Generating /boot/initramfs-6.8.0-49-generic
eilyad@eilyad-VMware-Virtual-Platform:~$ gcc --version
gcc (Ubuntu 13.2.0-23ubuntu4) 13.2.0
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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.

eilyad@eilyad-VMware-Virtual-Platform:~$ bash --version
GNU bash, version 5.2.21(1) release (x86_64-pc-linux-gnu)
Copyright (C) 2022 Free Software Foundation, Inc.
license GPLv3+; GNU GPL version 3 or later http://gnu.org/licenses/gpl.html
This is free software; you are free to change and redistribute it.
There is NO WARRANTY, to the extent permitted by law.
```