```python
print("Hello world  and  TA  Grace")
```

```
Hello world and TA Grace
```

```python
# Check Linux Version by Grace
!cat /etc/os-release

```

```
PRETTY_NAME="Ubuntu 22.04.3 LTS"
NAME="Ubuntu"
VERSION_ID="22.04"
VERSION="22.04.3 LTS (Jammy Jellyfish)"
VERSION_CODENAME=jammy
ID=ubuntu
ID_LIKE=debian
HOME_URL="https://www.ubuntu.com/"
SUPPORT_URL="https://help.ubuntu.com/"
BUG_REPORT_URL="https://bugs.launchpad.net/ubuntu/"
PRIVACY_POLICY_URL="https://www.ubuntu.com/legal/terms-and-policies/privacy-policy"
UBUNTU_CODENAME=jammy
```

```python
!lscpu        # For CPU information by Grace
```

```
Architecture:             x86_64
  CPU op-mode(s):         32-bit, 64-bit
  Address sizes:          46 bits physical, 48 bits virtual
  Byte Order:             Little Endian
CPU(s):                   2
  On-line CPU(s) list:    0,1
Vendor ID:                GenuineIntel
  Model name:             Intel(R) Xeon(R) CPU @ 2.20GHz
    CPU family:           6
    Model:                79
    Thread(s) per core:   2
    Core(s) per socket:   1
    Socket(s):            1
    Stepping:             0
    BogoMIPS:             4399.99
    Flags:                fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 cl
                          flush mmx fxsr sse sse2 ss ht syscall nx pdpe1gb rdtscp lm constant_tsc re
                          p_good nopl xtopology nonstop_tsc cpuid tsc_known_freq pni pclmulqdq ssse3
                           fma cx16 pcid sse4_1 sse4_2 x2apic movbe popcnt aes xsave avx f16c rdrand
                           hypervisor lahf_lm abm 3dnowprefetch invpcid_single ssbd ibrs ibpb stibp
                          fsgsbase tsc_adjust bmi1 hle avx2 smep bmi2 erms invpcid rtm rdseed adx sm
                          ap xsaveopt arat md_clear arch_capabilities
Virtualization features:
  Hypervisor vendor:      KVM
  Virtualization type:    full
Caches (sum of all):
  L1d:                    32 KiB (1 instance)
  L1i:                    32 KiB (1 instance)
  L2:                     256 KiB (1 instance)
  L3:                     55 MiB (1 instance)
NUMA:
  NUMA node(s):           1
  NUMA node0 CPU(s):      0,1
Vulnerabilities:
  Gather data sampling:   Not affected
  Itlb multihit:          Not affected
  L1tf:                   Mitigation; PTE Inversion
  Mds:                    Vulnerable; SMT Host state unknown
  Meltdown:               Vulnerable
  Mmio stale data:        Vulnerable
  Reg file data sampling: Not affected
  Retbleed:               Vulnerable
  Spec rstack overflow:   Not affected
  Spec store bypass:      Vulnerable
  Spectre v1:             Vulnerable: __user pointer sanitization and usercopy barriers only; no swa
                          pgs barriers
  Spectre v2:             Vulnerable; IBPB: disabled; STIBP: disabled; PBRSB-eIBRS: Not affected; BH
                          I: Vulnerable (Syscall hardening enabled)
  Srbds:                  Not affected
  Tsx async abort:        Vulnerable
```

```python
!nvidia-smi # GPU Information by Grace
```

```
Fri Oct 11 04:09:54 2024
+---------------------------------------------------------------------------------------+
| NVIDIA-SMI 535.104.05             Driver Version: 535.104.05   CUDA Version: 12.2     |
|-----------------------------------------+----------------------+----------------------+
| GPU  Name                 Persistence-M | Bus-Id        Disp.A | Volatile Uncorr. ECC |
| Fan  Temp   Perf          Pwr:Usage/Cap |         Memory-Usage | GPU-Util  Compute M. |
|                                         |                      |               MIG M. |
|=========================================+======================+======================|
|   0  Tesla T4                       Off | 00000000:00:04.0 Off |                    0 |
| N/A   48C    P8               9W /  70W |     0MiB / 15360MiB  |      0%      Default |
|                                         |                      |                  N/A |
```

```
+------------------------------------------------+------------------+--------------------+
|                                                                                       |
+------------------------------------------------+------------------+--------------------+
| Processes:                                                                            |
|  GPU   GI   CI        PID   Type   Process name                       GPU Memory      |
|        ID   ID                                                        Usage           |
|=======================================================================================|
|  No running processes found                                                           |
+------------------------------------------------+------------------+--------------------+
```

1 !free -h   # For memory (RAM) information by Grace

```
               total        used        free      shared  buff/cache   available
Mem:           12Gi        802Mi        7.0Gi       1.0Mi       4.9Gi        11Gi
Swap:            0B           0B          0B
```

1 !dpkg --list # List Installed Software by Grace

```
ii  r-cran-xml2                1.3.6-1.ca2204.1              amd64    CRAN Package 'xml2' (Parse XML)
ii  r-cran-xopen               1.0.1-1.ca2204.1              all      CRAN Package 'xopen' (Open System Files, 'URLs', Anyth
ii  r-cran-xtable              1:1.8-4-2                     all      GNU R coerce data to LaTeX and HTML tables
ii  r-cran-yaml                2.3.10-1.ca2204.1             amd64    CRAN Package 'yaml' (Methods to Convert R Data to YAML
ii  r-cran-zip                 2.3.1-1.ca2204.1              amd64    CRAN Package 'zip' (Cross-Platform 'zip' Compression)
ii  r-recommended              4.4.1-3.2204.0                all      GNU R collection of recommended packages [metapackage
ii  readline-common            8.1.2-1                       all      GNU readline and history libraries, common files
ii  rename                     1.30-1                        all      Perl extension for renaming multiple files
ii  rpcsvc-proto               1.4.2-0ubuntu6                amd64    RPC protocol compiler and definitions
ii  rsync                      3.2.7-0ubuntu0.22.04.2        amd64    fast, versatile, remote (and local) file-copying tool
ii  sed                        4.8-1ubuntu2                  amd64    GNU stream editor for filtering/transforming text
ii  sensible-utils             0.0.17                        all      Utilities for sensible alternative selection
ii  shared-mime-info           2.1-2                         amd64    FreeDesktop.org shared MIME database and spec
ii  software-properties-common 0.99.22.9                     all      manage the repositories that you install software from
ii  sudo                       1.9.9-1ubuntu2.4              amd64    Provide limited super user privileges to specific user
ii  systemd                    249.11-0ubuntu3.12            amd64    system and service manager
ii  systemd-sysv               249.11-0ubuntu3.12            amd64    system and service manager - SysV links
ii  sysvinit-utils             3.01-1ubuntu1                 amd64    System-V-like utilities
ii  tar                        1.34+dfsg-1ubuntu0.1.22.04.1  amd64    GNU version of the tar archiving utility
ii  tcl                        8.6.11+1build2                amd64    Tool Command Language (default version) - shell
ii  tcl-dev:amd64              8.6.11+1build2                amd64    Tool Command Language (default version) - development
ii  tcl8.6                     8.6.12+dfsg-1build1           amd64    Tcl (the Tool Command Language) v8.6 - shell
ii  tcl8.6-dev:amd64           8.6.12+dfsg-1build1           amd64    Tcl (the Tool Command Language) v8.6 - development fil
ii  tcllib                     1.20+dfsg-1                   all      Standard Tcl Library
ii  tk                         8.6.11+1build2                amd64    Toolkit for Tcl and X11 (default version) - windowing
ii  tk-dev:amd64               8.6.11+1build2                amd64    Toolkit for Tcl and X11 (default version) - developmen
ii  tk8.6                      8.6.12-1build1                amd64    Tk toolkit for Tcl and X11 v8.6 - windowing shell
ii  tk8.6-blt2.5               2.5.3+dfsg-4.1build2          amd64    graphics extension library for Tcl/Tk - library
ii  tk8.6-dev:amd64            8.6.12-1build1                amd64    Tk toolkit for Tcl and X11 v8.6 - development files
ii  tmux                       3.2a-4ubuntu0.2               amd64    terminal multiplexer
ii  tzdata                     2024a-0ubuntu0.22.04.1        all      time zone and daylight-saving time data
ii  ubuntu-keyring             2021.03.26                    all      GnuPG keys of the Ubuntu archive
ii  ubuntu-mono                20.10-0ubuntu2                all      Ubuntu Mono Icon theme
ii  ucf                        3.0043                        all      Update Configuration File(s): preserve user changes to
ii  unixodbc-common            2.3.9-5ubuntu0.1              all      Common ODBC configuration files
ii  unixodbc-dev:amd64         2.3.9-5ubuntu0.1              amd64    ODBC libraries for Unix (development files)
ii  unrar                      1:6.1.5-1                     amd64    Unarchiver for .rar files (non-free version)
ii  unzip                      6.0-26ubuntu3.2               amd64    De-archiver for .zip files
ii  usrmerge                   25ubuntu2                     all      Convert the system to the merged /usr directories sche
ii  util-linux                 2.37.2-4ubuntu3               amd64    miscellaneous system utilities
ii  uuid-dev:amd64             2.37.2-4ubuntu3.4             amd64    Universally Unique ID library - headers and static lib
ii  vim                        2:8.2.3995-1ubuntu2.19        amd64    Vi IMproved - enhanced vi editor
ii  vim-common                 2:8.2.3995-1ubuntu2.19        all      Vi IMproved - Common files
ii  vim-runtime                2:8.2.3995-1ubuntu2.19        all      Vi IMproved - Runtime files
ii  wget                       1.21.2-2ubuntu1.1             amd64    retrieves files from the web
ii  x11-common                 1:7.7+23ubuntu2               all      X Window System (X.Org) infrastructure
ii  x11proto-dev               2021.5-1                      all      X11 extension protocols and auxiliary headers
ii  xauth                      1:1.1-1build2                 amd64    X authentication utility
ii  xdg-utils                  1.1.3-4.1ubuntu3~22.04.1      all      desktop integration utilities from freedesktop.org
ii  xkb-data                   2.33-1                        all      X Keyboard Extension (XKB) configuration data
ii  xorg-sgml-doctools         1:1.11-1.1                    all      Common tools for building X.Org SGML documentation
ii  xtrans-dev                 1.4.0-1                       all      X transport library (development files)
ii  xxd                        2:8.2.3995-1ubuntu2.19        amd64    tool to make (or reverse) a hex dump
ii  xz-utils                   5.2.5-2ubuntu1                amd64    XZ-format compression utilities
ii  zip                        3.0-12build2                  amd64    Archiver for .zip files
ii  zlib1g:amd64               1:1.2.11.dfsg-2ubuntu9.2      amd64    compression library - runtime
ii  zlib1g-dev:amd64           1:1.2.11.dfsg-2ubuntu9.2      amd64    compression library - development
```

1 !df -h # Check Disk Usage by Grace
2

```
Filesystem      Size  Used Avail Use% Mounted on
overlay         108G   37G   72G  34% /
tmpfs            64M     0   64M   0% /dev
shm             5.8G     0  5.8G   0% /dev/shm
/dev/root       2.0G  1.2G  820M  59% /usr/sbin/docker-init
tmpfs           6.4G  136K  6.4G   1% /var/colab
/dev/sda1        77G   61G   16G  80% /etc/hosts
tmpfs           6.4G     0  6.4G   0% /proc/acpi
tmpfs           6.4G     0  6.4G   0% /proc/scsi
```

```
tmpfs           6.4G    0  6.4G   0% /sys/firmware
```

```python
1 # Simple Python script by Grace
2 def greet(name, name2):
3     return f"Hello, {name} and {name2}!"
4
5 greet("World", "TA Grace")
6
```

⮣ 'Hello, World and TA Grace!'

```python
1 import matplotlib.pyplot as plt
2
3 x = [1, 2, 3, 4, 5]
4 y = [1, 4, 9, 16, 25]
5
6 plt.plot(x, y)
7 plt.title("Simple Plot by TA Grace")
8 plt.show()
```

⮣

Simple Plot by TA Grace