**Assignment**

**Question-1: What is the difference between RSS and VSZ ?**

**Answer: Link-** [**https://softwareperformancenotes.github.io/rssvsz/**](https://softwareperformancenotes.github.io/rssvsz/)

**RSS:** RSS is the Resident Set Size and is used to show how much memory is allocated to that process and is in RAM. It does not include memory that is swapped out. It does include memory from shared libraries as long as the pages from those libraries are actually in memory. It does include all stack and heap memory.

**VSZ:** VSZ is the Virtual Memory Size. It includes all memory that the process can access, including memory that is swapped out, memory that is allocated, but not used, and memory that is from shared libraries.

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**Question-2: What is a Multitasking Operating system?**

**Answer: Link-** [**https://digitalthinkerhelp.com/what-is-multitasking-operating-system-with-their-examples-types/**](https://digitalthinkerhelp.com/what-is-multitasking-operating-system-with-their-examples-types/)Multitasking operating system provides the interface for executing the multiple program tasks by a single user at the same time on the one computer system. For example, users can open Gmail and PowerPoint at the same time.

There are **different types of multitasking OS** and below explained each one in detail:

### **True Multitasking**

True multitasking is capable of executing and processing multiple tasks concurrently without taking delay instead of switching tasks from one processor to another processor. It can perform a couple of tasks in parallel with underlying H/W or S/W.

### **Preemptive Multitasking**

Preemptive multitasking is a special task that is assigned to a computer **operating system**, in which it makes a decision on how much time is spent by one task before assigning another task for using the operating system. Operating system has control for completing this entire process, so it is known as “Preemptive”.

### **Cooperative Multitasking**

Cooperative multitasking is known as “Non-Preemptive Multitasking”. Main goal of Cooperative multitasking is to run the current task, and to release the CPU to allow another task run. This task is performed by calling taskYIELD().Context-switch is executed when this function is called.

There are some **examples of multi tasking OS** like as –

* Windows XP
* Windows Vista
* Windows 7
* Windows 8
* Windows 10
* IBM’s OS/390
* Linux
* UNIX

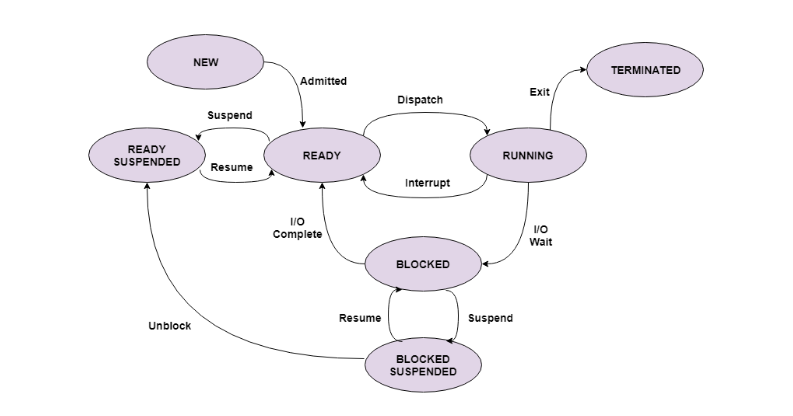
**======================================================================**

**Question-3: Difference states of process? Explain every state?**

**Answer: Link-** [**https://www.tutorialspoint.com/what-are-the-different-states-of-a-process**](https://www.tutorialspoint.com/what-are-the-different-states-of-a-process)

A process is an active program. It can also be said as a program that is under execution. It is more than the program code as it includes the program counter, process stack, registers, program code etc. Compared to this, the program code is only the text section.

A process passes through different states as it executes. These states may be different in different operating systems. However, the common process states are explained below with the help of a diagram −



**New:** This is the state when the process has just been created. It is the initial state in the process life cycle.

## **Ready:** In the ready state, the process is waiting to be assigned the processor by the short term scheduler, so it can run. This state is immediately after the new state for the process.

## **Ready Suspended:** The processes in ready suspended state are in secondary memory. They were initially in the ready state in main memory but lack of memory forced them to be suspended and get placed in the secondary memory.

## **Running:** The process is said to be in running state when the process instructions are being executed by the processor. This is done once the process is assigned to the processor using the short-term scheduler.

## **Blocked:** The process is in a blocked state if it is waiting for some event to occur. This event may be I/O as the I/O events are executed in the main memory and don't require the processor. After the event is complete, the process again goes to ready state.

## **Blocked Suspended:** This is similar to ready suspended. The processes in the blocked suspended state are in secondary memory. They were initially in the blocked state in main memory waiting for some event but lack of memory forced them to be suspended and get placed in the secondary memory. A process may go from blocked suspended to ready suspended if its work is done.

## **Terminated:** The process is terminated once it finishes its execution. In the terminated state, the process is removed from main memory and its process control block is also deleted.

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**Question-4: Explain PS command ?**

**Answer: Link-** [**https://docs.oracle.com/cd/E19455-01/805-7229/spprocess-47/index.html**](https://docs.oracle.com/cd/E19455-01/805-7229/spprocess-47/index.html)

The ps command enables us to check the status of active processes on a system, as well as display technical information about the processes. This data is useful for such administrative tasks as determining how to set process priorities.

Depending on which options we use, ps reports the following information:

* Current status of the process
* Process ID
* Parent process ID
* User ID
* Scheduling class
* Priority
* Address of the process
* Memory used
* CPU time used

The table below describes some of the fields reported by the ps command. The fields displayed depend on which option we choose. Table- Summary of Fields in ps Reports

| Field | Description |
| --- | --- |
| UID | The effective user ID of the process's owner. |
| PID | The process ID. |
| PPID | The parent process's ID. |
| C | The processor utilisation for scheduling. This field is not displayed when the -c option is used. |
| CLS | The scheduling class to which the process belongs: real-time, system, or time sharing. This field is included only with the -c option. |
| PRI | The kernel thread's scheduling priority. Higher numbers mean higher priority. |
| NI | The process's nice number, which contributes to its scheduling priority. Making a process "nicer" means lowering its priority. |
| ADDR | The address of the proc structure. |
| SZ | The virtual address size of the process. |
| WCHAN | The address of an event or lock for which the process is sleeping. |
| STIME | The starting time of the process (in hours, minutes, and seconds). |
| TTY | The terminal from which the process (or its parent) was started. A question mark indicates there is no controlling terminal. |
| TIME | The total amount of CPU time used by the process since it began. |
| CMD | The command that generated the process. |

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**Question: System login should be done from the mariadb database instead of /etc/passwd and /etc/shadow file.**

**Answer:**

| **WBS** | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Assignment Task : System Login should be done from MariaDB database using PAM** | | | | | | | | |
| **Task** | **Subtasks** | **Technology** | **Start Date** | **Planned End Date** | **Actual End Date** | **Status** | **Priority** | **Remarks** |
| **System Login should be done from MariaDB Database using PAM** | **Create VM** | **Linux- MariaDB** | **25-11-2022** | **25-11-2022** | **25-11-2022** | **Close** | **P1** |  |
| **Install MariaDB Server** | **Linux- MariaDB** | **26-11-2022** | **26-11-2022** | **26-11-2022** | **Close** | **P1** |  |
| **Configure MaraDB Server** | **Linux- MariaDB** | **27-11-2022** | **27-11-2022** | **27-11-2022** | **Close** | **P1** |  |
| **Configure PAM Authentication** | **Linux- MariaDB** | **28-11-2022** | **28-11-2022** | **TBD** | **Stuck** | **P1** |  |

I have searched the following links:

**Link:**[**https://gist.github.com/alpacaaa/3196852**](https://gist.github.com/alpacaaa/3196852)

[**https://www.ibm.com/support/pages/getting-pam-authenticate-against-mysql**](https://www.ibm.com/support/pages/getting-pam-authenticate-against-mysql)

[**https://www.tecmint.com/configure-pam-in-centos-ubuntu-linux/**](https://www.tecmint.com/configure-pam-in-centos-ubuntu-linux/)

[**https://www.devmanuals.net/install/ubuntu/ubuntu-12-04-lts-precise-pangolin/install-libnss-mysql-bg.html**](https://www.devmanuals.net/install/ubuntu/ubuntu-12-04-lts-precise-pangolin/install-libnss-mysql-bg.html)

[**https://unix.stackexchange.com/questions/42222/is-it-possible-to-change-password-database-file-etc-passwd-in-linux**](https://unix.stackexchange.com/questions/42222/is-it-possible-to-change-password-database-file-etc-passwd-in-linux)

[**https://mariadb.com/kb/en/user-and-group-mapping-with-pam/#installing-the-pam\_user\_map-pam-module**](https://mariadb.com/kb/en/user-and-group-mapping-with-pam/#installing-the-pam_user_map-pam-module)

[**https://techexpert.tips/mariadb/mariadb-pam-authentication/**](https://techexpert.tips/mariadb/mariadb-pam-authentication/)

[**https://mariadb.com/resources/blog/configuring-pam-authentication-and-user-mapping-with-mariadb/**](https://mariadb.com/resources/blog/configuring-pam-authentication-and-user-mapping-with-mariadb/)

**Steps:**

root@yogendra:/home/yogendra# **apt-get update**

**Install the MariaDB service.:**

root@yogendra:/home/yogendra# **apt-get install mariadb-server libmariadb-dev-compat libmariadb-dev**

**Create the PAM configuration file.**

root@yogendra:/home/yogendra# **vi /etc/pam.d/mariadb**

**Here is the file content to paste in the file:**

auth required pam\_unix.so

account required pam\_unix.so

**In our example, we are going to authenticate the MariaDB service access using the local account passwords.**

**Enable the MariaDB service to read the SHADOW file.**

groupadd shadow

usermod -a -G shadow mysql

chown root:shadow /etc/shadow

chmod g+r /etc/shadow

**Reboot the computer.**

root@yogendra:/home/yogendra# **reboot**

**Create a local user account.**

yogendra@yogendra:~$ sudo bash

[sudo] password for yogendra:

root@yogendra:/home/yogendra# **adduser test1**

Adding user `test1' ...

Adding a new group `test1' (1019) ...

Adding new user `test1' (1013) with group `test1' ...

Creating home directory `/home/test1' ...

Copying files from `/etc/skel' ...

New password:

BAD PASSWORD: The password is a palindrome

Retype new password:

passwd: password updated successfully

Changing the user information for test1

Enter the new value, or press ENTER for the default

Full Name []: test1

Room Number []:

Work Phone []:

Home Phone []:

Other []:

Is the information correct? [Y/n] y

**Access the MariaDB command-line.**

root@yogendra:/home/yogendra# **mysql -u root -p**

Enter password:

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 31

Server version: 10.6.11-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

**Enable the PAM authentication plugin.**

**MariaDB [(none)]> INSTALL SONAME 'auth\_pam';**

Query OK, 0 rows affected (0.115 sec)

**Create a new user account.**

**MariaDB [(none)]> CREATE USER 'test1'@'%' IDENTIFIED VIA pam USING 'mariadb';**

Query OK, 0 rows affected (0.246 sec)

**MariaDB [(none)]> GRANT ALL ON \*.\* TO 'test1'@'%';**

Query OK, 0 rows affected (0.012 sec)

**MariaDB [(none)]> FLUSH PRIVILEGES;**

Query OK, 0 rows affected (0.047 sec)

**MariaDB [(none)]> EXIT;**

**Bye**

In our example, we create a user account named TEST1.

In our example, we configured this user account to authenticate using the PAM file named MARIADB.

**Access the MariaDB command-line using the new account.**

**root@yogendra:/home/yogendra# mysql -u test1 -p**

Enter password:

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 32

Server version: 10.6.11-MariaDB-0ubuntu0.22.04.1 Ubuntu 22.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

Verify the user account.

**MariaDB [(none)]> SELECT USER(), CURRENT\_USER();**

+-----------------+----------------+

| USER() | CURRENT\_USER() |

+-----------------+----------------+

| test1@localhost | test1@% |

+-----------------+----------------+

1 row in set (0.007 sec)

MariaDB [(none)]>

**I followed the below given steps after following the link provided by Varad Sir:**

**Link:** [**https://www.spencerstirling.com/computergeek/mysqluser.html**](https://www.spencerstirling.com/computergeek/mysqluser.html)

**Steps:**

yogendra@yogendra:~$ **cat /etc/nsswitch.conf**

# /etc/nsswitch.conf

#

# Example configuration of GNU Name Service Switch functionality.

# If you have the `glibc-doc-reference' and `info' packages installed, try:

# `info libc "Name Service Switch"' for information about this file.

passwd: compat mysql

group: compat mysql

shadow: compat mysql

gshadow: files

hosts: files mdns4\_minimal [NOTFOUND=return] dns

networks: files

protocols: db files

services: db files

ethers: db files

rpc: db files

netgroup: nis

yogendra@yogendra:~$ **sudo mysql -V**

[sudo] password for vivek:

mysql Ver 15.1 Distrib 10.0.38-MariaDB, for debian-linux-gnu (i686) using readline 5.2

yogendra@yogendra:~$ **sudo apt install mariadb-client**

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following package was automatically installed and is no longer required:

snapd-login-service

Use 'sudo apt autoremove' to remove it.

The following NEW packages will be installed:

mariadb-client

0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.

Need to get 13.0 kB of archives.

After this operation, 62.5 kB of additional disk space will be used.

Get:1 http://in.archive.ubuntu.com/ubuntu xenial-updates/universe i386 mariadb-client all 10.0.38-0ubuntu0.16.04.1 [13.0 kB]

Fetched 13.0 kB in 0s (15.7 kB/s)

Selecting previously unselected package mariadb-client.

(Reading database ... 215050 files and directories currently installed.)

Preparing to unpack .../mariadb-client\_10.0.38-0ubuntu0.16.04.1\_all.deb ...

Unpacking mariadb-client (10.0.38-0ubuntu0.16.04.1) ...

Setting up mariadb-client (10.0.38-0ubuntu0.16.04.1) ...

yogendra@yogendra:~$ **sudo apt install libpam-mysql**

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following package was automatically installed and is no longer required:

snapd-login-service

Use 'sudo apt autoremove' to remove it.

The following NEW packages will be installed:

libpam-mysql

0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.

Need to get 27.3 kB of archives.

After this operation, 74.8 kB of additional disk space will be used.

Get:1 http://in.archive.ubuntu.com/ubuntu xenial/universe i386 libpam-mysql i386 0.7~RC1-4ubuntu2 [27.3 kB]

Fetched 27.3 kB in 0s (58.4 kB/s)

Preconfiguring packages ...

Selecting previously unselected package libpam-mysql.

(Reading database ... 215053 files and directories currently installed.)

Preparing to unpack .../libpam-mysql\_0.7~RC1-4ubuntu2\_i386.deb ...

Unpacking libpam-mysql (0.7~RC1-4ubuntu2) ...

Setting up libpam-mysql (0.7~RC1-4ubuntu2) ...

yogendra@yogendra:~$ **sudo apt install libnss-mysql**

Reading package lists... Done

Building dependency tree

Reading state information... Done

Package libnss-mysql is not available, but is referred to by another package.

This may mean that the package is missing, has been obsoleted, or

is only available from another source

E: Package 'libnss-mysql' has no installation candidate

yogendra@yogendra:~$ **sudo apt update**

Hit:1 http://in.archive.ubuntu.com/ubuntu xenial InRelease

Get:2 http://in.archive.ubuntu.com/ubuntu xenial-updates InRelease [99.8 kB]

Hit:3 http://security.ubuntu.com/ubuntu xenial-security InRelease

Get:4 http://in.archive.ubuntu.com/ubuntu xenial-backports InRelease [97.4 kB]

Get:5 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 Packages [1,525 kB]

Get:6 http://in.archive.ubuntu.com/ubuntu xenial-updates/main Translation-en [461 kB]

Get:7 https://esm.ubuntu.com/infra/ubuntu xenial-infra-security InRelease [7,524 B]

Get:8 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 DEP-11 Metadata [326 kB]

Get:9 http://in.archive.ubuntu.com/ubuntu xenial-updates/universe i386 DEP-11 Metadata [283 kB]

Get:10 http://in.archive.ubuntu.com/ubuntu xenial-updates/multiverse i386 DEP-11 Metadata [7,156 B]

Get:11 http://in.archive.ubuntu.com/ubuntu xenial-backports/main i386 DEP-11 Metadata [3,328 B]

Get:12 http://in.archive.ubuntu.com/ubuntu xenial-backports/universe i386 DEP-11 Metadata [6,608 B]

Get:13 https://esm.ubuntu.com/infra/ubuntu xenial-infra-updates InRelease [7,475 B]

Fetched 2,825 kB in 3s (928 kB/s)

Reading package lists... Done

Building dependency tree

Reading state information... Done

1 package can be upgraded. Run 'apt list --upgradable' to see it.

yogendra@yogendra:~$  **sudo apt upgrade**

Reading package lists... Done

Building dependency tree

Reading state information... Done

Calculating upgrade... Done

The following package was automatically installed and is no longer required:

snapd-login-service

Use 'sudo apt autoremove' to remove it.

#

# News about significant security updates, features and services will

# appear here to raise awareness and perhaps tease /r/Linux ;)

# Use 'pro config set apt\_news=false' to hide this and future APT news.

#

The following security updates require Ubuntu Pro with 'esm-infra' enabled:

libpam0g libgssapi3-heimdal libxdmcp6 libpcre16-3 perl-base libpolkit-gobject-1-0 libdjvulibre-text bluez libhttp-daemon-perl libcroco3 libwebp5 libdns-export162 libqpdf21 fuse libcomerr2 poppler-utils dbus-x11 gstreamer1.0-alsa libisccfg140 libcups2 intel-microcode libdbus-1-3 libwind0-heimdal uuid-runtime libfdisk1 libsasl2-modules-db xserver-common python3-mako vim-common libnss3-nssdb libcurl3 gnupg-agent libprotobuf-lite9v5 libgrilo-0.2-1 gstreamer1.0-plugins-base-apps libldap-2.4-2 libpam-modules openssl bluez-cups libc6-dbg libc6-dev imagemagick libcairo-gobject2 libgnutls-openssl27 ntfs-3g libwbclient0 libsystemd0 libgd3 libheimntlm0-heimdal libksba8 libavahi-glib1 gstreamer1.0-plugins-good libgs9 dbus libpixman-1-0 python2.7-minimal libmount1 tcpdump snapd libdbi-perl libsqlite3-0 libxrender1 libcdio13 libicu55 binutils libmagickwand-6.q16-2 squashfs-tools bind9-host e2fsprogs zlib1g libavahi-common-data dnsutils libgmp10 perl-modules-5.22 libavahi-common3 libpython2.7 libncurses5 python2.7 dnsmasq-base libcdio-cdda1 python3-pil libheimbase1-heimdal libc6 util-linux libpython3.5 python3.5 python3.5-minimal libsepol1 libpolkit-agent-1-0 libharfbuzz-icu0 libisc160 libvorbisfile3 udev locales gstreamer1.0-plugins-base cups-server-common passwd libsasl2-2 libklibc libpam-runtime e2fslibs isc-dhcp-common cups-common libwavpack1 libncursesw5 libx11-6 libexpat1 libgstreamer-plugins-good1.0-0 libudev1 libvpx3 rsyslog libwebpdemux1 gstreamer1.0-pulseaudio dirmngr libss2 mount libavahi-ui-gtk3-0 libwayland-client0 libperl5.22 libaspell15 samba-libs libcdio-paranoia1 apport gdisk libblkid1 dpkg imagemagick-6.q16 libtiff5 libmagickcore-6.q16-2-extra libisc-export160 busybox-static libc-bin man-db libsasl2-modules cups-ppdc libcupsmime1 libtinfo5 libcaca0 python3-apport libxi6 libjbig2dec0 libpcre3 libxv1 avahi-daemon libvorbisenc2 libfuse2 tar systemd-sysv libspeex1 libuuid1 libavahi-core7 libgcrypt20 liblwres141 libjack-jackd2-0 libhcrypto4-heimdal libglib2.0-bin vim-runtime liblz4-1 gpgv ubuntu-core-launcher vim libpam-systemd libgstreamer-plugins-base1.0-0 libxrandr2 distro-info-data libsndfile1 xz-utils gstreamer1.0-x ghostscript systemd libsmartcols1 login gir1.2-gst-plugins-base-1.0 libxfixes3 libpolkit-backend-1-0 libwebpmux1 mysql-common ncurses-bin libpam-modules-bin libx11-data ghostscript-x aspell libopenexr22 libsmbclient unzip libspeexdsp1 openssh-client libmagickcore-6.q16-2 libmysqlclient20 libgs9-common avahi-autoipd bsdutils libgraphite2-3 libdns162 xserver-xorg-core-hwe-16.04 libjpeg-turbo8 qpdf libglib2.0-data bluez-obexd ncurses-base gnupg2 bash policykit-1 libdjvulibre21 apport-gtk libjbig0 libc-dev-bin libxml2 libcupsppdc1 libflac8 libpython2.7-minimal multiarch-support cpio libgnutls30 libnss3 libroken18-heimdal libfreetype6 ca-certificates perl rsync vim-tiny imagemagick-common libasn1-8-heimdal libzstd1 libisccc140 libkrb5-26-heimdal cups-bsd avahi-utils cron xserver-xorg-legacy-hwe-16.04 libpython3.5-stdlib cups-core-drivers libvorbis0a libbind9-140 cups-daemon gzip python3-jinja2 libharfbuzz0b libtasn1-6 gnupg libbluetooth3 libice6 libcairo2 libcupsimage2 libpython2.7-stdlib libexiv2-14 libpoppler-glib8 liblzma5 python3-lxml libpython3.5-minimal libpoppler58 libavahi-client3 libprotobuf9v5 cups libdpkg-perl libhx509-5-heimdal isc-dhcp-client libcupscgi1 cups-client klibc-utils python3-problem-report libsamplerate0 libpng12-0 libglib2.0-0 libcurl3-gnutls libwayland-server0 libx11-xcb1 libxslt1.1 libssl1.0.0 dpkg-dev tzdata busybox-initramfs libwayland-cursor0

Learn more about Ubuntu Pro for 16.04 at https://ubuntu.com/16-04

The following packages will be upgraded:

ubuntu-advantage-tools

1 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.

Need to get 168 kB of archives.

After this operation, 56.3 kB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 http://in.archive.ubuntu.com/ubuntu xenial-updates/main i386 ubuntu-advantage-tools i386 27.12~16.04.1 [168 kB]

Fetched 168 kB in 1s (91.9 kB/s)

Preconfiguring packages ...

(Reading database ... 215064 files and directories currently installed.)

Preparing to unpack .../ubuntu-advantage-tools\_27.12~16.04.1\_i386.deb ...

Unpacking ubuntu-advantage-tools (27.12~16.04.1) over (27.11.3~16.04.1) ...

Processing triggers for man-db (2.7.5-1) ...

Setting up ubuntu-advantage-tools (27.12~16.04.1) ...

Installing new version of config file /etc/ubuntu-advantage/help\_data.yaml ...

Installing new version of config file /etc/update-motd.d/91-contract-ua-esm-status ...

yogendra@yogendra:~$ **sudo apt install libnss-mysql**

Reading package lists... Done

Building dependency tree

Reading state information... Done

Package libnss-mysql is not available, but is referred to by another package.

This may mean that the package is missing, has been obsoleted, or

is only available from another source

E: Package 'libnss-mysql' has no installation candidate

yogendra@yogendra:~$ **sudo apt install libpam-mysql**

Reading package lists... Done

Building dependency tree

Reading state information... Done

libpam-mysql is already the newest version (0.7~RC1-4ubuntu2).

The following package was automatically installed and is no longer required:

snapd-login-service

Use 'sudo apt autoremove' to remove it.

0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.

yogendra@yogendra:~$ **sudo apt autoremove**

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following packages will be REMOVED:

snapd-login-service

0 upgraded, 0 newly installed, 1 to remove and 0 not upgraded.

After this operation, 58.4 kB disk space will be freed.

Do you want to continue? [Y/n] y

(Reading database ... 215096 files and directories currently installed.)

Removing snapd-login-service (1.33-0ubuntu0.16.04.1) ...

Processing triggers for dbus (1.10.6-1ubuntu3.6) ...

yogendra@yogendra:~$ **sudo apt search libnss-mysql**

Sorting... Done

Full Text Search... Done

libnss-mysql-bg/xenial,now 1.5-4build1 i386 [installed]

NSS module for using MySQL as a naming service

yogendra@yogendra:~$ **cat /usr/share/doc**

doc/ doc-base/

yogendra@yogendra:~$ **cat /usr/share/doc/libnss**

libnss3/ libnss-mdns/

libnss3-nssdb/ libnss-mysql-bg/

yogendra@yogendra:~$ **cat /usr/share/doc/libnss-mysql-bg/**

cat: /usr/share/doc/libnss-mysql-bg/: Is a directory

yogendra@yogendra:~$  **cat /usr/share/doc/libnss-mysql-bg/**

AUTHORS NEWS.gz

changelog.Debian.gz README

copyright THANKS

DEBUGGING.gz TODO

examples/ UPGRADING.gz

FAQ.gz

yogendra@yogendra:~$ **cat /usr/share/doc/libnss-mysql-bg/**

AUTHORS NEWS.gz

changelog.Debian.gz README

copyright THANKS

DEBUGGING.gz TODO

examples/ UPGRADING.gz

FAQ.gz

yogendra@yogendra:~$ **sudo apt update**

Get:1 http://security.ubuntu.com/ubuntu xenial-security InRelease [99.8 kB]

Hit:2 http://in.archive.ubuntu.com/ubuntu xenial InRelease

Hit:3 http://in.archive.ubuntu.com/ubuntu xenial-updates InRelease

Hit:4 http://in.archive.ubuntu.com/ubuntu xenial-backports InRelease

Get:5 http://security.ubuntu.com/ubuntu xenial-security/main i386 DEP-11 Metadata [93.8 kB]

Get:6 http://security.ubuntu.com/ubuntu xenial-security/universe i386 DEP-11 Metadata [130 kB]

Get:7 http://security.ubuntu.com/ubuntu xenial-security/multiverse i386 DEP-11 Metadata [2,464 B]

Hit:8 https://esm.ubuntu.com/infra/ubuntu xenial-infra-security InRelease

Hit:9 https://esm.ubuntu.com/infra/ubuntu xenial-infra-updates InRelease

Fetched 326 kB in 2s (154 kB/s)

Reading package lists... Done

Building dependency tree

Reading state information... Done

All packages are up to date.

yogendra@yogendra:~$ **sudo apt install libnss-mysql-bg**

Reading package lists... Done

Building dependency tree

Reading state information... Done

libnss-mysql-bg is already the newest version (1.5-4build1).

0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.

yogendra@yogendra:~$ **cat /usr/share/doc/libnss**

libnss3/ libnss3-nssdb/ libnss-mdns/ libnss-mysql-bg/

yogendra@yogendra:~$ **cat /usr/share/doc/libnss-mysql-bg/**

AUTHORS examples/ THANKS

changelog.Debian.gz FAQ.gz TODO

copyright NEWS.gz UPGRADING.gz

DEBUGGING.gz README

yogendra@yogendra:~$ **cat /usr/share/doc/libpam**

libpam0g/ libpam-modules-bin/ libpam-systemd/

libpam-gnome-keyring/ libpam-mysql/

libpam-modules/ libpam-runtime/

yogendra@yogendra:~$ **cat /usr/share/doc/libpam**

libpam0g/ libpam-modules-bin/ libpam-systemd/

libpam-gnome-keyring/ libpam-mysql/

libpam-modules/ libpam-runtime/

yogendra@yogendra:~$ **cat /usr/share/doc/libpam-mysql/**

changelog.Debian.gz NEWS.gz TODO.Debian

copyright README.Debian

CREDITS README.gz

yogendra@yogendra:~$  **sudo mysql -u root -p**

Enter password:

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 34

Server version: 10.0.38-MariaDB-0ubuntu0.16.04.1 Ubuntu 16.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> **create database nss\_mysql;**

Query OK, 1 row affected (0.01 sec)

MariaDB [(none)]> **use nss\_mysql;**

Database changed

MariaDB [nss\_mysql]> **drop table if exists user;**

Query OK, 0 rows affected, 1 warning (0.00 sec)

MariaDB [nss\_mysql]>

[1]+ Stopped sudo mysql -u root -p

yogendra@yogendra:~$ **sudo mysql -u root -p**

Enter password:

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 35

Server version: 10.0.38-MariaDB-0ubuntu0.16.04.1 Ubuntu 16.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> **use nss\_mysql;**

Database changed

MariaDB [nss\_mysql]> **CREATE TABLE groups (**

**-> group\_id int(11) NOT NULL auto\_increment primary key,**

**-> group\_name varchar(30) DEFAULT '' NOT NULL,**

**-> status char(1) DEFAULT 'A',**

**-> group\_password varchar(64) DEFAULT 'x' NOT NULL,**

**-> gid int(11) NOT NULL**

**-> );**

Query OK, 0 rows affected (0.05 sec)

MariaDB [nss\_mysql]> **INSERT INTO groups VALUES (1,'users','A','x',100);**

Query OK, 1 row affected (0.01 sec)

MariaDB [nss\_mysql]> **DROP TABLE IF EXISTS user;**

Query OK, 0 rows affected, 1 warning (0.00 sec)

MariaDB [nss\_mysql]> **CREATE TABLE user (**

**-> user\_id int(11) NOT NULL auto\_increment primary key,**

**-> user\_name varchar(50) DEFAULT '' NOT NULL,**

**-> realname varchar(32) DEFAULT '' NOT NULL,**

**-> shell varchar(20) DEFAULT '/bin/sh' NOT NULL,**

**-> password varchar(40) DEFAULT '' NOT NULL,**

**-> status char(1) DEFAULT 'N' NOT NULL,**

**-> uid int(11) NOT NULL,**

**-> gid int(11) DEFAULT '65534' NOT NULL,**

**-> homedir varchar(32) DEFAULT '/bin/sh' NOT NULL,**

**-> lastchange varchar(50) NOT NULL default '',**

**-> min int(11) NOT NULL default '0',**

**-> max int(11) NOT NULL default '0',**

**-> warn int(11) NOT NULL default '7',**

**-> inact int(11) NOT NULL default '-1',**

**-> expire int(11) NOT NULL default '-1'**

**-> );**

Query OK, 0 rows affected (0.03 sec)

MariaDB [nss\_mysql]> **DROP TABLE IF EXISTS user\_group;**

Query OK, 0 rows affected, 1 warning (0.00 sec)

MariaDB [nss\_mysql]> **CREATE TABLE user\_group (**

**-> user\_id int(11) DEFAULT '0' NOT NULL,**

**-> group\_id int(11) DEFAULT '0' NOT NULL**

**-> );**

Query OK, 0 rows affected (0.04 sec)

MariaDB [nss\_mysql]> **GRANT select(user\_name,user\_id,uid,gid,realname,shell,homedir,status) on user to nss@localhost identified by 'ieopurASDF';**

Query OK, 0 rows affected (0.02 sec)

MariaDB [nss\_mysql]> **GRANT select(group\_name,group\_id,gid,group\_password,status) on groups to nss@localhost identified by 'ieopurASDF';**

Query OK, 0 rows affected (0.00 sec)

MariaDB [nss\_mysql]> **GRANT select(user\_id,group\_id) on user\_group to nss@localhost identified by 'ieopurASDF';**

Query OK, 0 rows affected (0.00 sec)

MariaDB [nss\_mysql]> **GRANT select(user\_name,password,user\_id,uid,gid,realname,shell,homedir,status,lastchange,min,max,warn,inact,expire) on user to 'nss-shadow'@localhost identified by 'ruASDFDER';**

Query OK, 0 rows affected (0.00 sec)

MariaDB [nss\_mysql]> **GRANT update(user\_name,password,user\_id,uid,gid,realname,shell,homedir,status,lastchange,min,max,warn,inact,expire) on user to 'nss-shadow'@localhost identified by 'ruASDFDER';**

Query OK, 0 rows affected (0.00 sec)

MariaDB [nss\_mysql]> **FLUSH PRIVILEGES;**

Query OK, 0 rows affected (0.01 sec)

MariaDB [nss\_mysql]>

MariaDB [nss\_mysql]> **exit**

Bye

yogendra@yogendra:~$ **sudo mysql**

Welcome to the MariaDB monitor. Commands end with ; or \g.

Your MariaDB connection id is 36

Server version: 10.0.38-MariaDB-0ubuntu0.16.04.1 Ubuntu 16.04

Copyright (c) 2000, 2018, Oracle, MariaDB Corporation Ab and others.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

MariaDB [(none)]> **use nss\_mysql;**

Reading table information for completion of table and column names

You can turn off this feature to get a quicker startup with -A

Database changed

MariaDB [nss\_mysql]> **show tables;**

+---------------------+

| Tables\_in\_nss\_mysql |

+---------------------+

| groups |

| user |

| user\_group |

+---------------------+

3 rows in set (0.00 sec)

MariaDB [nss\_mysql]> **desc user\_group;**

+----------+---------+------+-----+---------+-------+

| Field | Type | Null | Key | Default | Extra |

+----------+---------+------+-----+---------+-------+

| user\_id | int(11) | NO | | 0 | |

| group\_id | int(11) | NO | | 0 | |

+----------+---------+------+-----+---------+-------+

2 rows in set (0.02 sec)

MariaDB [nss\_mysql]> **desc user;**

+------------+-------------+------+-----+---------+----------------+

| Field | Type | Null | Key | Default | Extra |

+------------+-------------+------+-----+---------+----------------+

| user\_id | int(11) | NO | PRI | NULL | auto\_increment |

| user\_name | varchar(50) | NO | | | |

| realname | varchar(32) | NO | | | |

| shell | varchar(20) | NO | | /bin/sh | |

| password | varchar(40) | NO | | | |

| status | char(1) | NO | | N | |

| uid | int(11) | NO | | NULL | |

| gid | int(11) | NO | | 65534 | |

| homedir | varchar(32) | NO | | /bin/sh | |

| lastchange | varchar(50) | NO | | | |

| min | int(11) | NO | | 0 | |

| max | int(11) | NO | | 0 | |

| warn | int(11) | NO | | 7 | |

| inact | int(11) | NO | | -1 | |

| expire | int(11) | NO | | -1 | |

+------------+-------------+------+-----+---------+----------------+

15 rows in set (0.01 sec)

MariaDB [nss\_mysql]> insert into user (

Display all 787 possibilities? (y or n)

MariaDB [nss\_mysql]> insert into user (user\_name ,realname, password, lastname) values ( 'kna' , 'keenable' , 'redhat' , 'no' );

ERROR 1054 (42S22): Unknown column 'lastname' in 'field list'

MariaDB [nss\_mysql]> insert into user (user\_name ,realname, password, lastname) values ( 'kna' , 'keenable' , 'redhat' );

ERROR 1136 (21S01): Column count doesn't match value count at row 1

MariaDB [nss\_mysql]> insert into user (user\_name ,realname, password ) values ( 'kna' , 'keenable' , 'redhat' );

Query OK, 1 row affected, 1 warning (0.01 sec)

MariaDB [nss\_mysql]> **select \* from user;**

+---------+-----------+----------+---------+----------+--------+-----+-------+---------+------------+-----+-----+------+-------+--------+

| user\_id | user\_name | realname | shell | password | status | uid | gid | homedir | lastchange | min | max | warn | inact | expire |

+---------+-----------+----------+---------+----------+--------+-----+-------+---------+------------+-----+-----+------+-------+--------+

| 1 | kna | keenable | /bin/sh | redhat | N | 0 | 65534 | /bin/sh | | 0 | 0 | 7 | -1 | -1 |

+---------+-----------+----------+---------+----------+--------+-----+-------+---------+------------+-----+-----+------+-------+--------+

1 row in set (0.01 sec)

MariaDB [nss\_mysql]> select \* from user\G

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* 1. row \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

user\_id: 1

user\_name: kna

realname: keenable

shell: /bin/sh

password: redhat

status: N

uid: 0

gid: 65534

homedir: /bin/sh

lastchange:

min: 0

max: 0

warn: 7

inact: -1

expire: -1

1 row in set (0.00 sec)

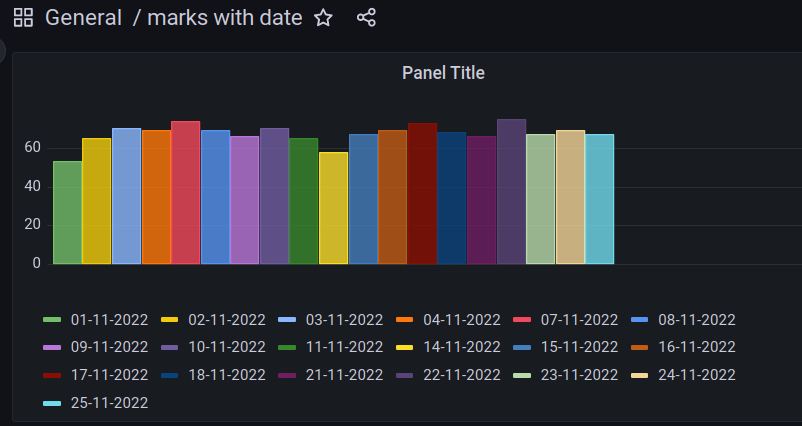
MariaDB [nss\_mysql]> exit

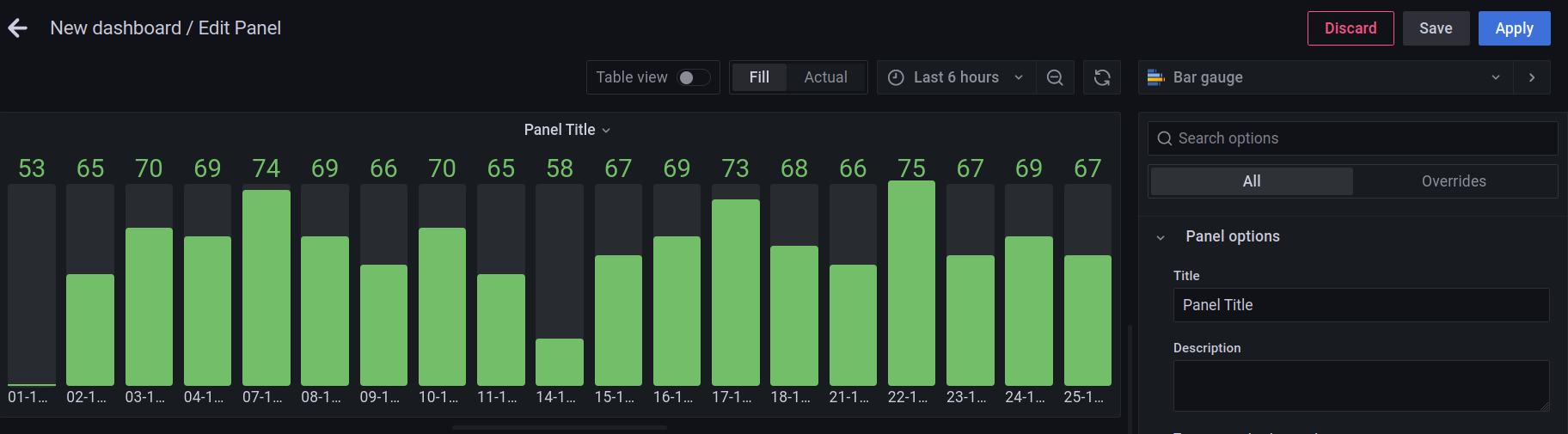
Bye

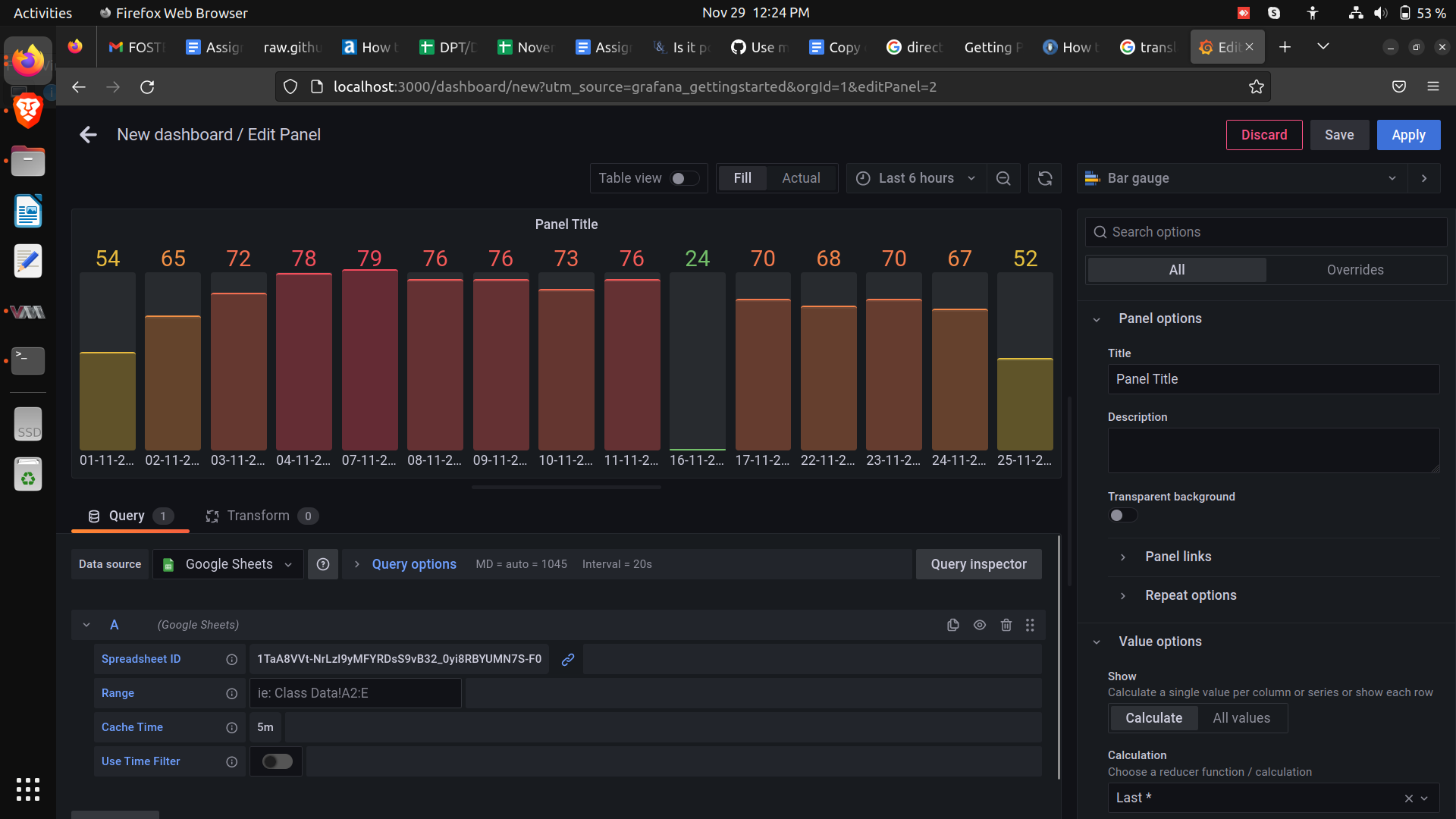
yogendra@yogendra:~$ **sudo vim /etc/nsswitch.conf**

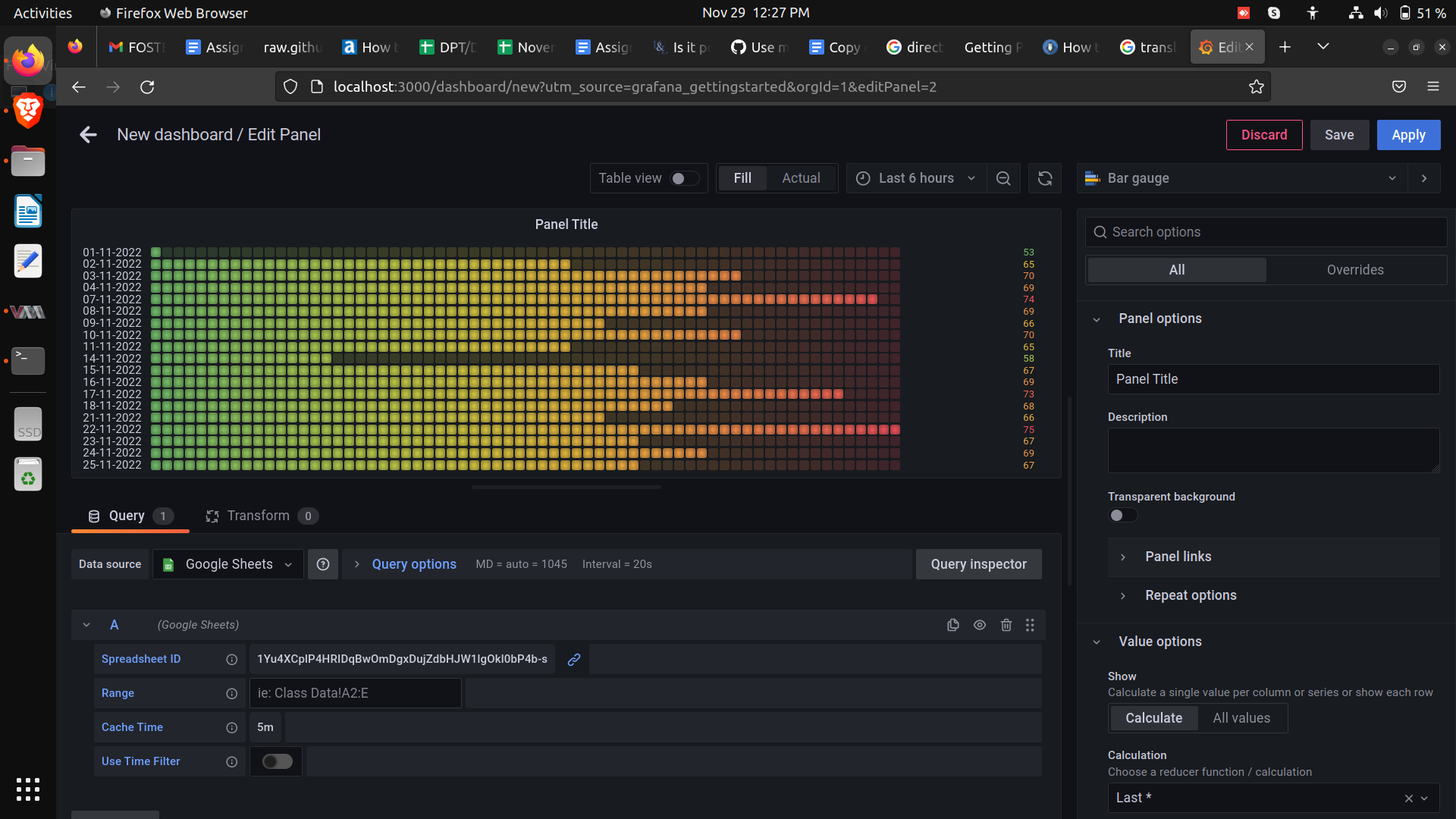
**Question: Marks On Grafana Dashboard:**

**Answer:** Document Link: <https://docs.google.com/document/d/1jndSveSNJ1TAa5jV3ki36S7TTOrSDdcxPN-3u_ykv9Y/edit?usp=sharing>



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