SGE on Ubuntu servers

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Tutorial for setting up SGE on Ubuntu servers, both as master and client nodes. It covers installation steps and configurations required for proper functioning of the Grid Engine system.

Setting up SGE (Sun Grid Engine) on Ubuntu

Master Server — Part 1

1. Update:

```
apt-get update
```

2. Add a new user

```
adduser gsadmin --uid 500
```

3. Download Grid Engine package:

```
wget http://downloads.sourceforge.net/project/gridscheduler/GE2011.11p1/GE2011.
tar -zxvf GE2011.11p1.tar.gz
```

```
mv GE2011.11p1 /home/gsadmin/
chown -R gsadmin:gsadmin /home/gsadmin/
```

4. Install NFS Server (Network File System):

```
apt-get install nfs-kernel-server
echo "/home/gsadmin *(rw,sync,no_subtree_check,no_root_squash)" >> /etc/exports
exportfs -a
service nfs-kernel-server restart
```

5. Install OpenJDK-8:

```
apt-get install openjdk-8-jdk
echo "export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64/" >> ~/.bashrc
export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64/
echo "export PATH=$PATH:/usr/lib/jvm/java-8-openjdk-amd64/bin" >> ~/.bashrc
export PATH=$PATH:/usr/lib/jvm/java-8-openjdk-amd64/bin
echo "export SGE_ROOT=/home/gsadmin/GE2011.11p1" >> ~/.bashrc
export SGE_ROOT=/home/gsadmin/GE2011.11p1
source ~/.bashrc
```

Host (Client) Server — Part 1

1. Add a user:

```
adduser gsadmin --uid 500
```

2. Install NFS client:

```
apt-get install nfs-common
```

3. Mount shared directory:

```
mount xxx.xxx.xxx.xxx:/home/gsadmin /home/gsadmin/
# Note: Handle any errors if encountered
```

4. Set up auto-mount:

```
echo "xxx.xxx.xxx.xxx:/home/gsadmin /home/gsadmin nfs" >> /etc/fstab
```

Master Server — Part 2

1. Install gridengine-master:

```
apt-get install gridengine-master
```

2. Modify /etc/hosts:

```
#127.0.0.1
#127.0.1.1
xxx.xxx.xxx.xxx master master
yyy.yyy.yyy.yyy node01 node01
zzz.zzz.zzz.zzz node02 node02
```

3. Restart after modifications:

```
service gridengine-master restart
```

4. Confirm installation:

```
qhost
# Ensure qmaster entry in /etc/hosts and /var/lib/gridengine/default/common/act
ln -s /var/lib/gridengine/default /home/gsadmin/GE2011.11.pl/default
```

Host (Client) Server — Part 2

1. Install gridengine-client:

```
apt-get install gridengine-client
```

2. Install gridengine-exec:

```
apt-get install gridengine-exec
```

3. Restart

```
/etc/init.d/gridengine-exec restart
```

Master Server — Part 3

1. Add nodes to admin list:

```
qconf -ah node01
qconf -ah node02
```

2. Add gsadmin group:

```
qconf -au gsadmin gsadmin
```

3. Add nodes to commit hosts:

```
qconf -as node01
qconf -as node02
```

4. Add queues to cluster:

```
qconf -aq main.q
```

5. Modify main.q:

```
qconf -mq main.q
# Configure hostlist and slots accordingly
```

6. Restart:

```
service gridengine-master restart
```

Host (Client) Server — Part 3

1. Modify /etc/hosts to match master server:

```
# Update /etc/hosts to match the master server
```

2. Restart:

```
/etc/init.d/gridengine-exec restart
```

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qhost

End

Additional commands such as `qstat`, `qmod`, `qsub` etc., can be used for various tasks.

- `qstat -f` : To display full and detailed information about all jobs and queues.

- `qstat -F` : To display complete information about all jobs and queues.

- `qmod -c main.q@hostname` : To clear a job from a specific queue (`main.q`) at a given hostname.

- `qmod -d main.q@hostname` : To disable a job in a specific queue (`main.q`) at a given hostname.

- `qmod -e main.q@hostname` : To enable a job in a specific queue (`main.q`) at a given hostname.

- `qdel listnum` : To delete a job with the specified job number.

- `qsub` : To submit a job for execution.

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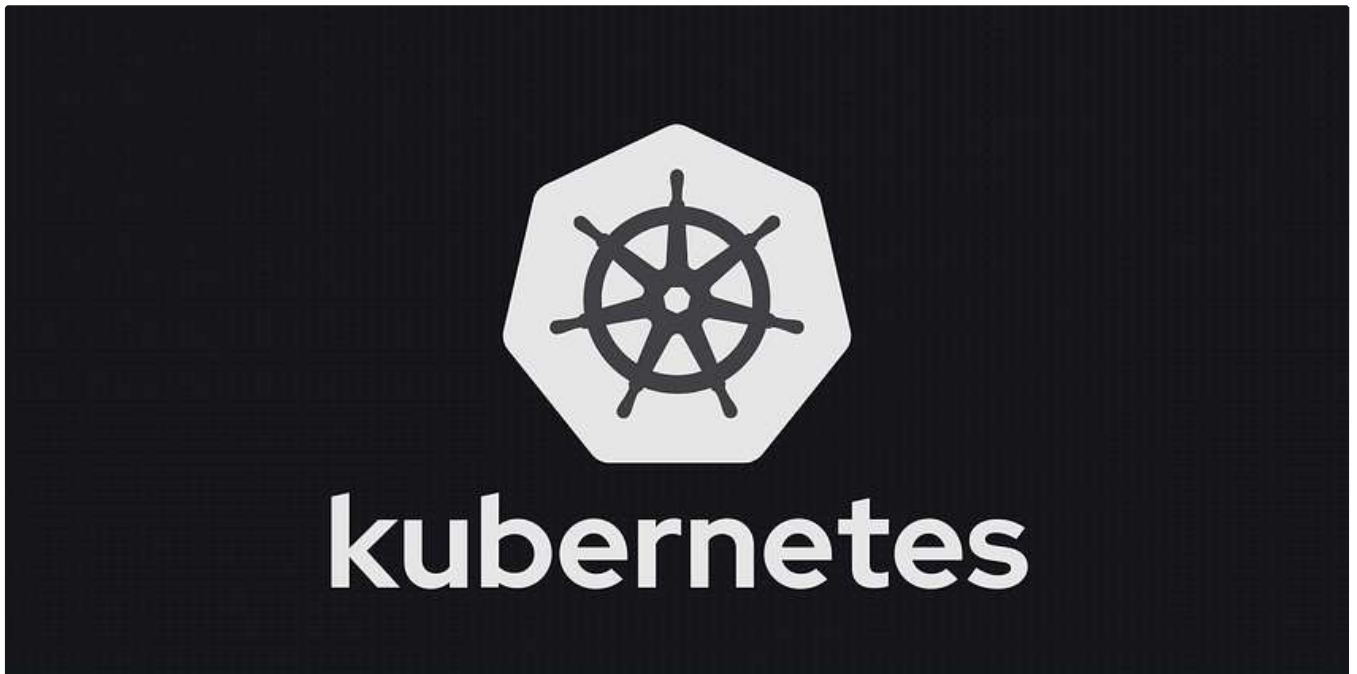## Examples for Java focusing on Object-Oriented Programming (OOP), design patterns, data structures...

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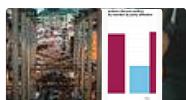

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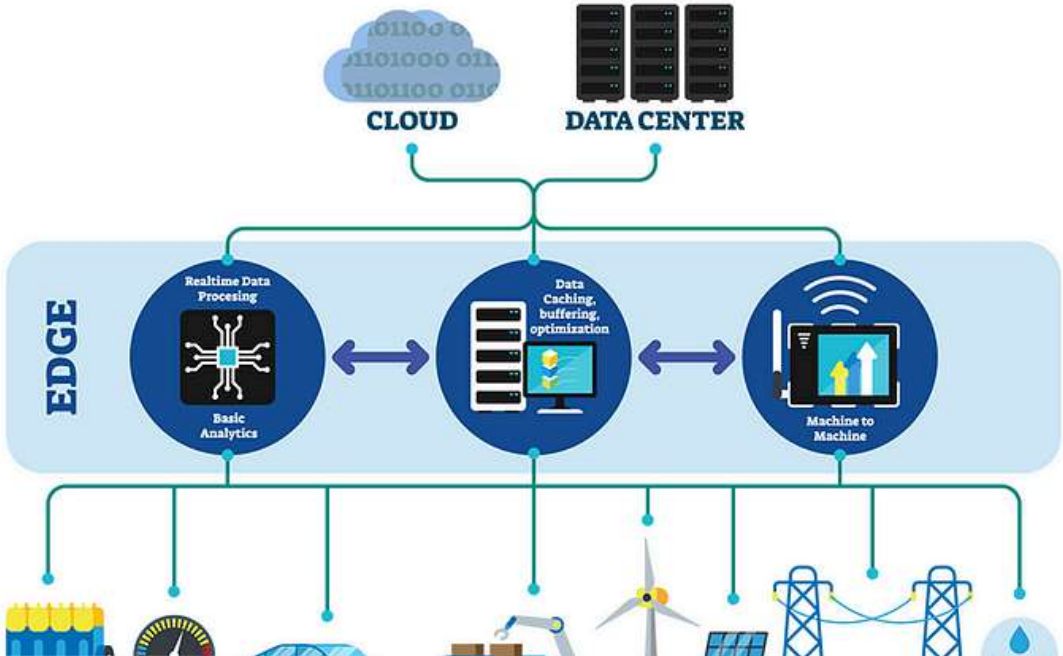20 stories · 1778 saves

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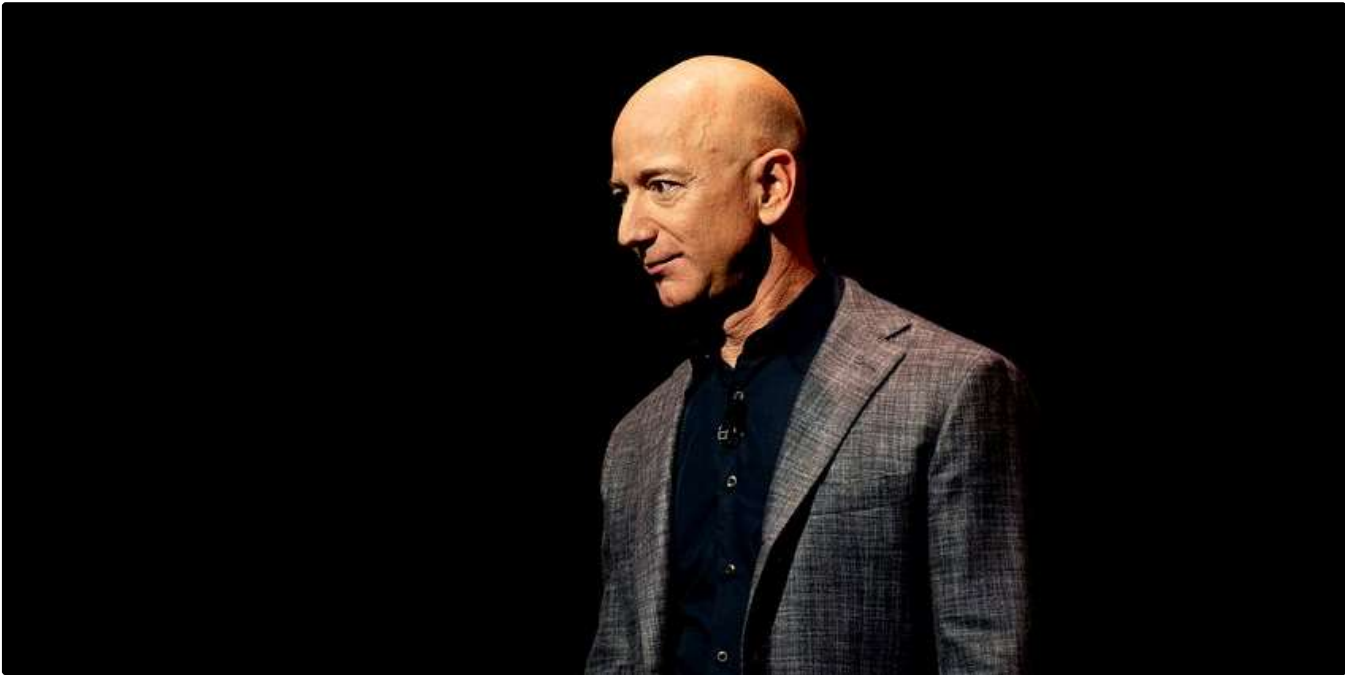
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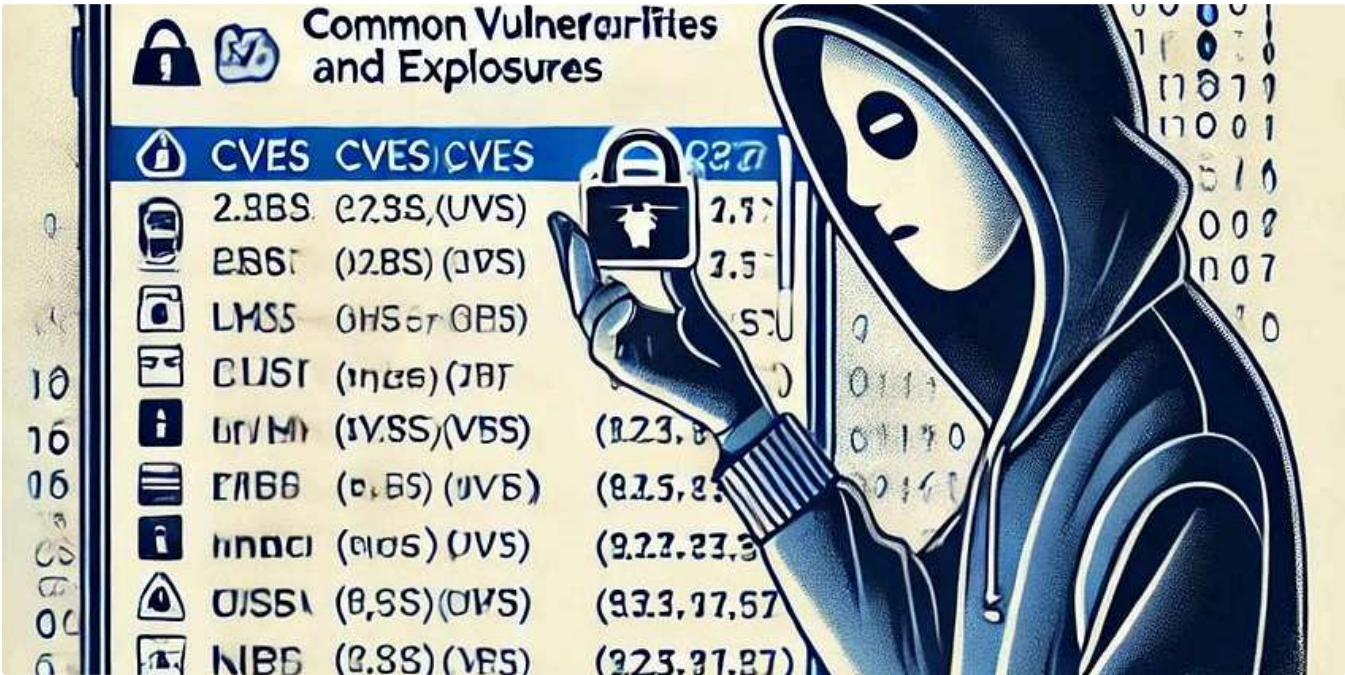
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