# Screenshot

A screenshot of a computer

Description automatically generated with medium confidence

# Outputs and analysis

Starting Assignment 2...

Initialising...

Topology file: topology.brite

Starting CloudSim version 3.0

Datacenter\_0 is starting...

Datacenter\_1 is starting...

Datacenter\_2 is starting...

Broker1 is starting...

Broker2 is starting...

Broker3 is starting...

Entities started.

0.0: Broker1: Cloud Resource List received with 3 resource(s)

0.0: Broker2: Cloud Resource List received with 3 resource(s)

0.0: Broker3: Cloud Resource List received with 3 resource(s)

9.199999809265137: Broker2: Trying to Create VM #0 in Datacenter\_0

11.399999618530273: Broker3: Trying to Create VM #0 in Datacenter\_0

13.800000190734863: Broker1: Trying to Create VM #0 in Datacenter\_0

[VmScheduler.vmCreate] Allocation of VM #0 to Host #0 failed by MIPS

[VmScheduler.vmCreate] Allocation of VM #0 to Host #0 failed by MIPS

18.499999618530275: Broker2: VM #0 has been created in Datacenter #2, Host #0

18.499999618530275: Broker2: Sending cloudlet 0 to VM #0

21.299999809265138: Broker3: Creation of VM #0 failed in Datacenter #2

21.299999809265138: Broker3: Trying to Create VM #0 in Datacenter\_1

21.700000381469728: Broker1: Creation of VM #0 failed in Datacenter #2

21.700000381469728: Broker1: Trying to Create VM #0 in Datacenter\_1

[VmScheduler.vmCreate] Allocation of VM #0 to Host #0 failed by MIPS

28.999999713897708: Broker3: VM #0 has been created in Datacenter #3, Host #0

28.999999713897708: Broker3: Sending cloudlet 0 to VM #0

31.80000038146973: Broker1: Creation of VM #0 failed in Datacenter #3

31.80000038146973: Broker1: Trying to Create VM #0 in Datacenter\_2

45.700000572204594: Broker1: VM #0 has been created in Datacenter #4, Host #0

45.700000572204594: Broker1: Sending cloudlet 0 to VM #0

187.6999994277954: Broker2: Cloudlet 0 received

187.6999994277954: Broker2: All Cloudlets executed. Finishing...

187.6999994277954: Broker2: Destroying VM #0

Broker2 is shutting down...

196.59999961853026: Broker3: Cloudlet 0 received

196.59999961853026: Broker3: All Cloudlets executed. Finishing...

196.59999961853026: Broker3: Destroying VM #0

Broker3 is shutting down...

219.50000076293946: Broker1: Cloudlet 0 received

219.50000076293946: Broker1: All Cloudlets executed. Finishing...

219.50000076293946: Broker1: Destroying VM #0

Broker1 is shutting down...

Simulation: No more future events

CloudInformationService: Notify all CloudSim entities for shutting down.

Datacenter\_0 is shutting down...

Datacenter\_1 is shutting down...

Datacenter\_2 is shutting down...

Broker1 is shutting down...

Broker2 is shutting down...

Broker3 is shutting down...

Simulation completed.

Simulation completed.

=============> User 5

========== OUTPUT ==========

Cloudlet ID STATUS Data center ID VM ID Time Start Time Finish Time

0 SUCCESS 4 0 160 52.6 212.6

=============> User 6

========== OUTPUT ==========

Cloudlet ID STATUS Data center ID VM ID Time Start Time Finish Time

0 SUCCESS 2 0 160 23.1 183.1

=============> User 7

========== OUTPUT ==========

Cloudlet ID STATUS Data center ID VM ID Time Start Time Finish Time

0 SUCCESS 3 0 160 32.8 192.8

Assignment 2 finished!

Analysis:

At the start of the program the simulation loads the network topography and starts the brokers and the data centers. Then at 0.0 The 3 brokers receive their respective cloudlets. Because each broker tests its connection to each datacenter the output shows the greatest delay. When Broker 2 tries to create VM #0 on datacenter 0 it must ping all the data centers, the datacenter with the greatest delay for broker 2 is datacenter 0 which has a travel delay of 9.2 ((3.5 + 1.1) \* 2) (we multiply by two because it’s a round trip). When Broker 3 tries to create VM #0 on datacenter 0 it also must ping every datacenter, the datacenter with the greatest delay is datacenter 2 with a delay of 11.39 ((3.8 + 0.8 + 1.1) \* 2). When Broker 1 tries to create VM #0 in datacenter 0 it pings the other datacenter and datacenter 2 has the greatest delay is datacenter 2 with a delay of 13.8 ((3.9 + 1.1 + 0.8 + 1.1) \* 2). At 18.5 (9.2 + 0.1 + 9.2) Broker 2 successfully created in datacenter 2 and the cloudlet gets center to the server and received at 187.7 ((4.5 + 40000/250 + 4.5) + 18.5) and then the VM and broker get destroyed. Both Broker 3 and Broker 1 find out that the VM allocation failed because of MIPS at 21.3 (11.4 + 5.7 + 0.1 + 5.7) and 21.7 (13.8 + 6.9 + 6.9 + 0.1) respectively. Then at 21.3 both Brokers 3 and 1 try to create a VM on datacenter 1. Then at 28.9 (21.7 + 3.8 + 3.8) Broker 3 successfully creates the VM and sends the cloudlet to It. Then at 196.59 (3.8 + 3.8 + 0.1 + 40000/250) the Broker receives the results and terminates. At 31.8 (21.7 + 5 + 5 + 0.1) Broker 1 learns that the VM creation failed, and it tries again on datacenter 2. At 45.7 (31.8 + 6.9 + 6.9 + 0.1) Broker 1 learns that the VM was successfully created, and the cloudlet is sent. At 219.5 (45.7 + 6.9 + 6.9 + 0.1 + 40000/250) broker 1 gets the results and terminates. All cloudlets have been processed at this time thus the simulation is terminated.