

Exp No: 8

Date: 25/09/2024

CLOUD SIMULATION

**IMPLEMENT ROUND ROBIN TASK SCHEDULING IN BOTH TIME SHARED AND
SPACE SHARED CPU ASSIGNMENT**

AIM:

Implement Round Robin task scheduling in both Timeshared and Space Shared CPU assignments.

PROCEDURE:

1. Create a new project by selecting java console line application template and JDK 18.
2. Open project settings from the file menu of the options window.
3. Navigate to project dependencies and select on add external jars and then click on 'Browse' to open the path where you have unzipped the Cloud Sim Jars and click on apply.
4. Create a java file with the cloud Sim code to implement the round robin scheduling algorithm.
5. Run the application as a java file to see the output in the console below.

OUTPUT:

New Java Project

Create a Java Project

Enter a project name.

Project name:

☒ Use default location

Location:

JRE

☐ Use an execution environment JRE:

☐ Use a project specific JRE:

☒ Use default JRE 'jdk-20' and workspace compiler preferences [Configure JREs...](#)

Project layout

☐ Use project folder as root for sources and class files

☒ Create separate folders for sources and class files [Configure default...](#)

Working sets

☐ Add project to working sets

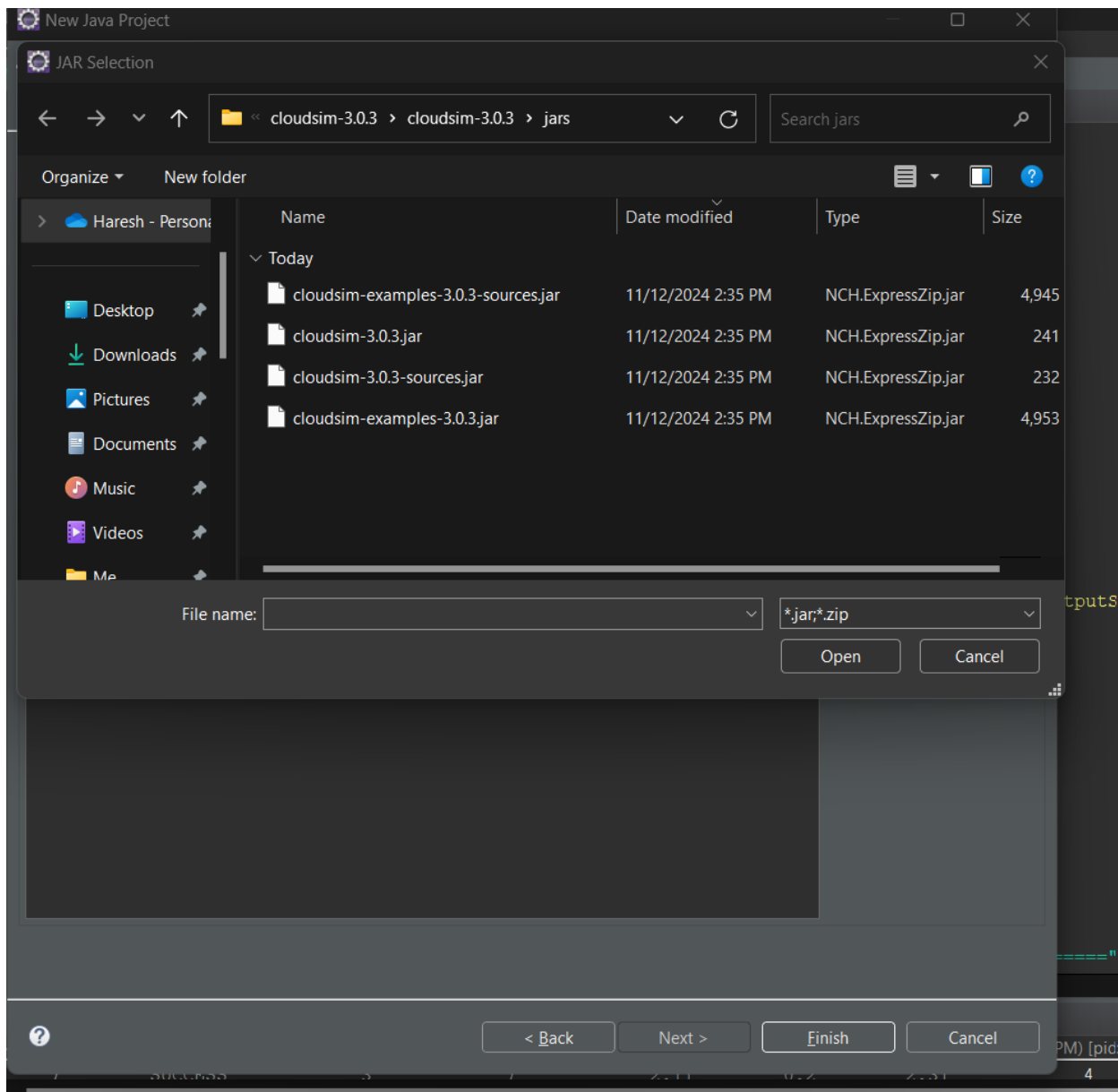
Working sets:

Module

☒ Create module-info.java file

Module name:

☒ Generate comments



```
Problems Javadoc Declaration Console X
<terminated> RoundRobinTaskSceduling (1) [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe (Nov 12, 2024, 3:42:27 PM - 3:42:27 PM) [pid: 21712]
===== Round Robin Task Scheduling Algorithm Implementation =====
===== Starting Execution =====
Initialising...
Starting CloudSim version 3.0
Datacenter_0 is starting...
Datacenter_1 is starting...
Broker is starting...
Entities started.
0.0: Broker: Cloud Resource List received with 2 resource(s)
0.0: Broker: Trying to Create VM #0 in Datacenter_0
0.0: Broker: Trying to Create VM #1 in Datacenter_0
0.0: Broker: Trying to Create VM #2 in Datacenter_0
0.0: Broker: Trying to Create VM #3 in Datacenter_0
0.0: Broker: Trying to Create VM #4 in Datacenter_0
0.0: Broker: Trying to Create VM #5 in Datacenter_0
0.0: Broker: Trying to Create VM #6 in Datacenter_0
0.0: Broker: Trying to Create VM #7 in Datacenter_0
0.0: Broker: Trying to Create VM #8 in Datacenter_0
0.0: Broker: Trying to Create VM #9 in Datacenter_0
[VmScheduler.vmmCreate] Allocation of VM #6 to Host #0 failed by RAM
[VmScheduler.vmmCreate] Allocation of VM #6 to Host #1 failed by MIPS
[VmScheduler.vmmCreate] Allocation of VM #7 to Host #0 failed by RAM
[VmScheduler.vmmCreate] Allocation of VM #7 to Host #1 failed by MIPS
[VmScheduler.vmmCreate] Allocation of VM #8 to Host #0 failed by RAM
[VmScheduler.vmmCreate] Allocation of VM #8 to Host #1 failed by MIPS
[VmScheduler.vmmCreate] Allocation of VM #9 to Host #0 failed by RAM
[VmScheduler.vmmCreate] Allocation of VM #9 to Host #1 failed by MIPS
0.1: Broker: VM #0 has been created in Datacenter #2, Host #0
0.1: Broker: VM #1 has been created in Datacenter #2, Host #0
0.1: Broker: VM #2 has been created in Datacenter #2, Host #0
0.1: Broker: VM #3 has been created in Datacenter #2, Host #1
0.1: Broker: VM #4 has been created in Datacenter #2, Host #0
0.1: Broker: VM #5 has been created in Datacenter #2, Host #1
0.1: Broker: Creation of VM #6 failed in Datacenter #2
0.1: Broker: Creation of VM #7 failed in Datacenter #2
0.1: Broker: Creation of VM #8 failed in Datacenter #2
0.1: Broker: Creation of VM #9 failed in Datacenter #2

Problems Javadoc Declaration Console X
<terminated> RoundRobinTaskSceduling (1) [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe (Nov 12, 2024, 3:42:27 PM - 3:42:27 PM) [pid: 21712]
===== OUTPUT =====
Cloudlet      Burst Time      Waiting Time      Turn Around Time
-----
Cloudlet: 2      1.03      0.0      1.03
Cloudlet: 9      1.47      1.03      2.5
Cloudlet: 0      1.52      2.5      4.02
Cloudlet: 4      1.64      4.02      5.66
Cloudlet: 6      1.99      5.66      7.6499996
Cloudlet: 7      2.11      7.6499996      9.759999
Cloudlet: 3      2.54      9.759999      12.299999
Cloudlet: 1      2.65      12.299999      14.949999
Cloudlet: 8      2.79      14.949999      17.739998
Cloudlet: 5      2.86      17.739998      20.599998
Cloudlet: 10     1.45      20.599998      22.05
```

Problems Javadoc Declaration Console ×										
<terminated> RoundRobinTaskSceduling (1) [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe (Nov 12, 2024, 3:42:27 PM – 3:42:27 PM) [pid: 21712]										
Cloudlet: 35 2.73 80.56 83.29										
Average Waiting Time on Total: 40.25475										
Average Turn Around Time on Total: 42.336998										
Cloudlet ID	STATUS	Data center ID	VM ID	Time	Start Time	Finish Time	User ID	Waiting Time	Turn Around Time	
2	SUCCESS	2	2	1.03	0.2	1.23	4	0.0	1.03	
9	SUCCESS	3	9	1.47	0.2	1.67	4	1.03	2.5	
0	SUCCESS	2	0	1.52	0.2	1.72	4	2.5	4.02	
4	SUCCESS	2	4	1.64	0.2	1.84	4	4.02	5.66	
6	SUCCESS	3	6	1.99	0.2	2.19	4	5.66	7.6499996	
7	SUCCESS	3	7	2.11	0.2	2.31	4	7.6499996	9.759999	
3	SUCCESS	2	3	2.54	0.2	2.74	4	9.759999	12.299999	
1	SUCCESS	2	1	2.65	0.2	2.85	4	12.299999	14.949999	
8	SUCCESS	3	8	2.79	0.2	2.99	4	14.949999	17.739998	
5	SUCCESS	2	5	2.86	0.2	3.06	4	17.739998	20.599998	
10	SUCCESS	2	0	1.45	1.72	3.17	4	20.599998	22.05	
14	SUCCESS	2	4	1.69	1.84	3.53	4	22.05	23.74	
19	SUCCESS	3	9	2.09	1.67	3.76	4	23.74	25.83	
16	SUCCESS	3	6	1.83	2.19	4.02	4	25.83	27.66	
12	SUCCESS	2	2	2.94	1.23	4.17	4	27.66	30.6	
15	SUCCESS	2	5	2	3.06	5.06	4	30.6	32.6	
24	SUCCESS	2	4	1.67	3.53	5.2	4	32.6	34.269997	
18	SUCCESS	3	8	2.29	2.99	5.27	4	34.269997	36.559999	
11	SUCCESS	2	1	2.45	2.85	5.31	4	36.559998	39.01	
17	SUCCESS	3	7	3.07	2.31	5.38	4	39.01	42.079998	
13	SUCCESS	2	3	2.91	2.74	5.65	4	42.079998	44.98999	
20	SUCCESS	2	0	2.72	3.17	5.89	4	44.989998	47.71	
26	SUCCESS	3	6	1.88	4.02	5.9	4	47.71	49.59	
29	SUCCESS	3	9	2.44	3.76	6.2	4	49.59	52.03	
34	SUCCESS	2	4	1.43	5.2	6.63	4	52.03	53.46	
22	SUCCESS	2	2	2.59	4.17	6.76	4	53.46	56.05	
23	SUCCESS	2	3	1.34	5.65	6.99	4	56.05	57.39	
25	SUCCESS	2	5	2.04	5.06	7.1	4	57.39	59.43	
39	SUCCESS	3	9	1.06	6.2	7.26	4	59.43	60.49	
28	SUCCESS	3	8	2.36	5.27	7.63	4	60.49	62.850002	
32	SUCCESS	2	2	1.13	6.76	7.88	4	62.850002	63.98000	

20	SUCCESS	2	0	2.72	3.17	5.89	4	44.989998	47.71
26	SUCCESS	3	6	1.88	4.02	5.9	4	47.71	49.59
29	SUCCESS	3	9	2.44	3.76	6.2	4	49.59	52.03
34	SUCCESS	2	4	1.43	5.2	6.63	4	52.03	53.46
22	SUCCESS	2	2	2.59	4.17	6.76	4	53.46	56.05
23	SUCCESS	2	3	1.34	5.65	6.99	4	56.05	57.39
25	SUCCESS	2	5	2.04	5.06	7.1	4	57.39	59.43
39	SUCCESS	3	9	1.06	6.2	7.26	4	59.43	60.49
28	SUCCESS	3	8	2.36	5.27	7.63	4	60.49	62.850002
32	SUCCESS	2	2	1.13	6.76	7.88	4	62.850002	63.98000
27	SUCCESS	3	7	2.52	5.38	7.9	4	63.980003	66.5
30	SUCCESS	2	0	2.13	5.89	8.02	4	66.5	68.63
36	SUCCESS	3	6	2.2	5.9	8.09	4	68.63	70.829994
21	SUCCESS	2	1	2.97	5.31	8.28	4	70.829994	73.79999
33	SUCCESS	2	3	1.97	6.99	8.96	4	73.799995	75.77
31	SUCCESS	2	1	1.01	8.28	9.29	4	75.77	76.78
38	SUCCESS	3	8	1.96	7.63	9.59	4	76.78	78.74
37	SUCCESS	3	7	1.82	7.9	9.72	4	78.74	80.56
35	SUCCESS	2	5	2.73	7.1	9.83	4	80.56	83.29
Round Robin has finished executing!									

RESULT:

Round Robin task scheduling in both Timeshared and Space Shared CPU assignments has been successfully implemented.