

Assignment - 7 : Simulation of Scheduling Algorithm in CloudSim

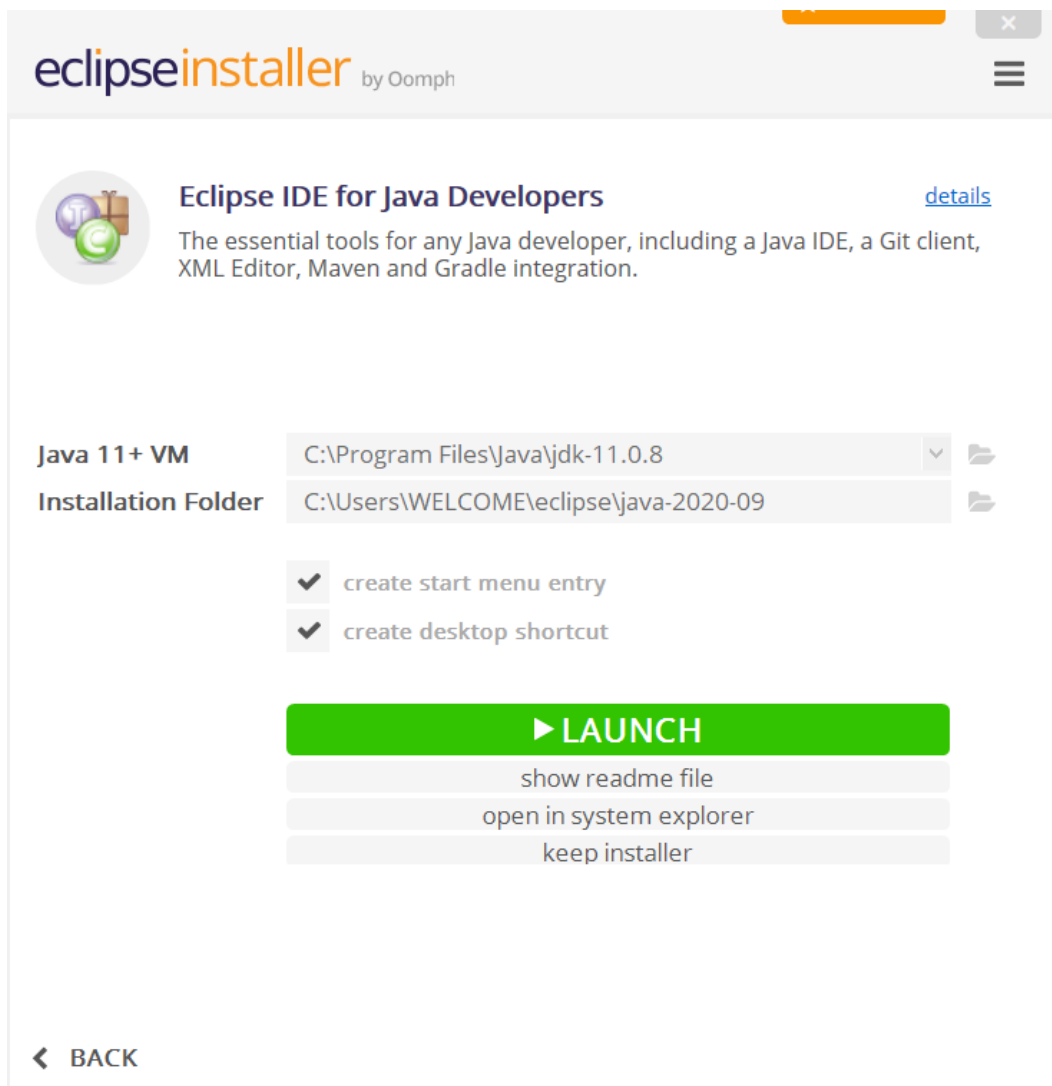
1) Install JDK 1.6 and later for Java

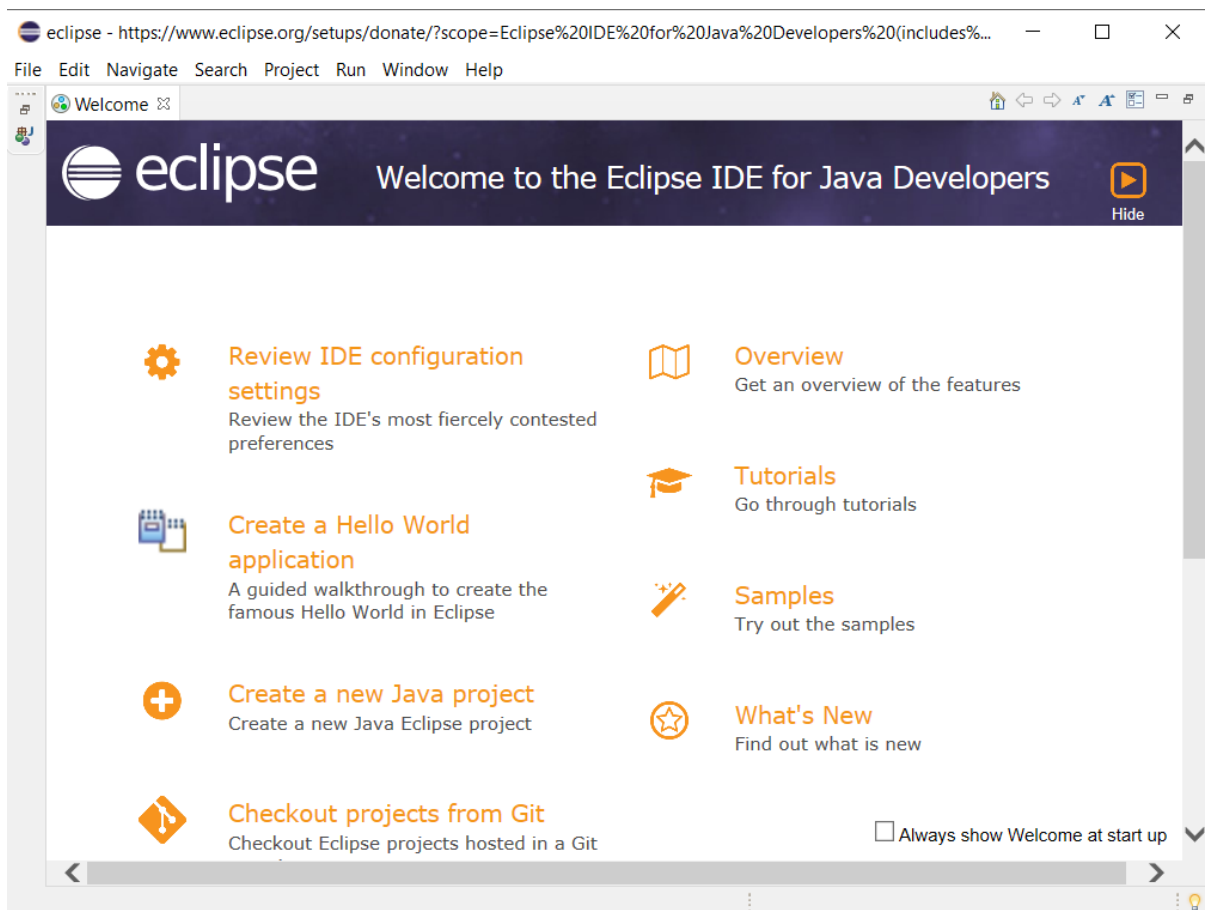
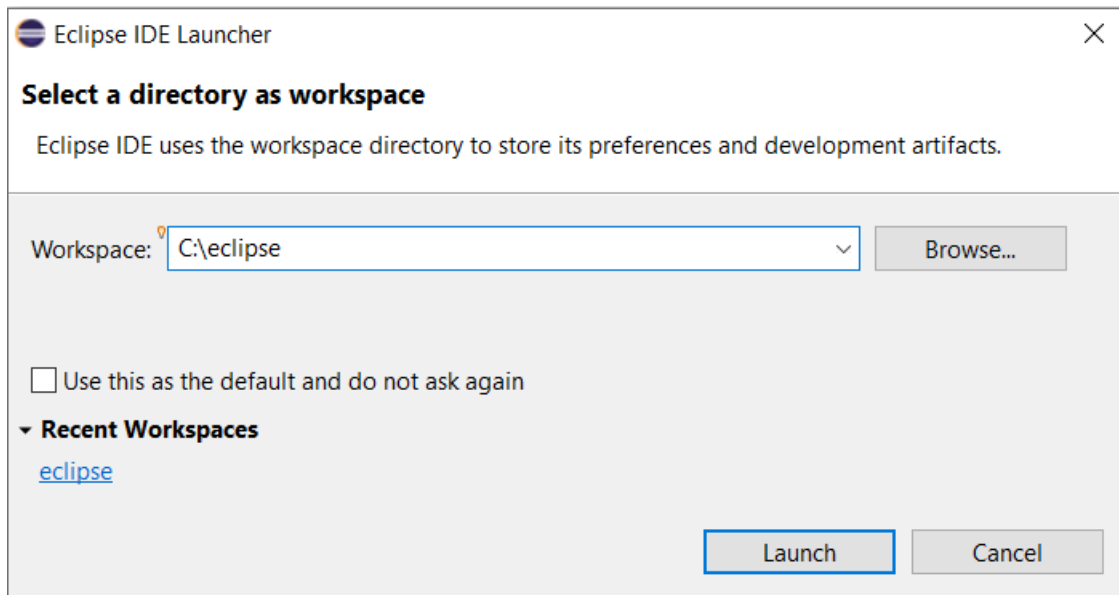
```
C:\Windows\System32\cmd.exe

C:\Users\WELCOME\Desktop\CC lab>java -version
java version "11.0.8" 2020-07-14 LTS
Java(TM) SE Runtime Environment 18.9 (build 11.0.8+10-LTS)
Java HotSpot(TM) 64-Bit Server VM 18.9 (build 11.0.8+10-LTS, mixed mode)

C:\Users\WELCOME\Desktop\CC lab>javac -version
javac 11.0.8
```

2) Install , Eclipse Classic (3.5.1 and higher)





3) Install CloudSim toolkit

4) Configure CloudSim project using eclipse IDE

New Java Project

Create a Java Project

Create a Java project in the workspace or in an external location.

Project name:

☐ Use default location

Location:

JRE

☒ Use an execution environment JRE:

☐ Use a project specific JRE:

☐ Use default JRE 'jre' 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:

 The wizard will automatically configure the JRE and the project layout based on the existing source.

New Java Project

Java Settings


Define the Java build settings.


Source Projects Libraries Order and Export Module Dependencies


cloudSimDemo

- examples
- sources
- docs
- jars
- build.xml
- changelog.txt
- examples.txt
- license.txt
- pom.xml
- readme.txt

Details

 [Create new source folder](#): use this if you want to add a new source folder to your project.

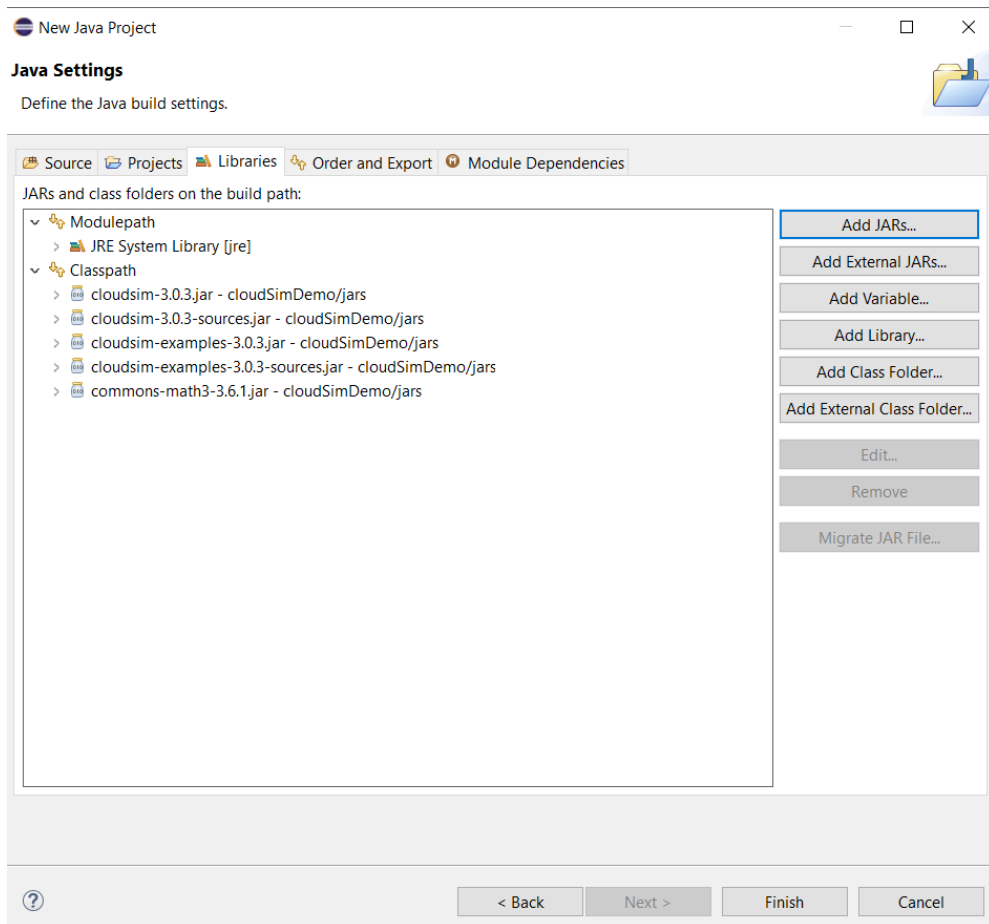
 [Link additional source](#): use this if you have a folder in the file system that should be used as additional source folder.

 [Add project 'cloudSimDemo' to build path](#): Add the project to the build path if the project is the root of packages and source files. Entries on the build path are visible to the compiler and used for building.

☐ Allow output folders for source folders

☒ Create module-info.java file

Default output folder:



5) Execute the CloudSimExample1 program

```

Problems @ Javadoc Declaration Console Progress
<terminated> CloudSimExample1 [Java Application] C:\Users\WELCOME\AppData\Local\Temp\eo17838.tmp\plugins\org.eclipse.justj.openjdk.h
Starting CloudSimExample1...
Initialising...
Starting CloudSim version 3.0
Datacenter_0 is starting...
Broker is starting...
Entities started.
0.0: Broker: Cloud Resource List received with 1 resource(s)
0.0: Broker: Trying to Create VM #0 in Datacenter_0
0.1: Broker: VM #0 has been created in Datacenter #2, Host #0
0.1: Broker: Sending cloudlet 0 to VM #0
400.1: Broker: Cloudlet 0 received
400.1: Broker: All Cloudlets executed. Finishing...
400.1: Broker: Destroying VM #0
Broker is shutting down...
Simulation: No more future events
CloudInformationService: Notify all CloudSim entities for shutting down.
Datacenter_0 is shutting down...
Broker is shutting down...
Simulation completed.
Simulation completed.

===== OUTPUT =====
Cloudlet ID   STATUS   Data center ID   VM ID   Time   Start Time   Finish Time
0             SUCCESS   2               0       400    0.1          400.1
CloudSimExample1 finished!

```

6) Execute SJF scheduling algorithm

```
<terminated> SJF_Scheduler [Java Application] C:\Users\WELCOME\AppData\Local\Temp\eo7838.tmp\plugins\vo
Starting SJF Scheduler...
Reading the Matrices...
Initialising...
Starting CloudSim version 3.0
Datacenter_0 is starting...
Broker_0 is starting...
Entities started.
0.0: Broker_0: Cloud Resource List received with 1 resource(s)
0.0: Broker_0: Trying to Create VM #2 in Datacenter_0
0.1: Broker_0: VM #2 has been created in Datacenter #2, Host #0
1.Cloudler Id:394,Cloudlet Length:48865
2.Cloudler Id:70,Cloudlet Length:52387
3.Cloudler Id:302,Cloudlet Length:69833
4.Cloudler Id:322,Cloudlet Length:77278
5.Cloudler Id:273,Cloudlet Length:83153
6.Cloudler Id:9,Cloudlet Length:92188
7.Cloudler Id:167,Cloudlet Length:125069
8.Cloudler Id:65,Cloudlet Length:143876
9.Cloudler Id:165,Cloudlet Length:146554
10.Cloudler Id:61,Cloudlet Length:159780
11.Cloudler Id:240,Cloudlet Length:161657
12.Cloudler Id:53,Cloudlet Length:161713
13.Cloudler Id:309,Cloudlet Length:162751
14.Cloudler Id:148,Cloudlet Length:166383
15.Cloudler Id:241,Cloudlet Length:169140
16.Cloudler Id:280,Cloudlet Length:172537
17.Cloudler Id:283,Cloudlet Length:176252
18.Cloudler Id:77,Cloudlet Length:177503
19.Cloudler Id:331,Cloudlet Length:183491
20.Cloudler Id:15,Cloudlet Length:188966
21.Cloudler Id:162,Cloudlet Length:193498
22.Cloudler Id:6,Cloudlet Length:208195
23.Cloudler Id:243,Cloudlet Length:213391
24.Cloudler Id:391,Cloudlet Length:213681
25.Cloudler Id:180,Cloudlet Length:218479
26.Cloudler Id:266,Cloudlet Length:232807
27.Cloudler Id:12,Cloudlet Length:239585
28.Cloudler Id:128,Cloudlet Length:243810
29.Cloudler Id:247,Cloudlet Length:248292
30.Cloudler Id:234,Cloudlet Length:254253
31.Cloudler Id:252,Cloudlet Length:256584
32.Cloudler Id:358,Cloudlet Length:261335
33.Cloudler Id:335,Cloudlet Length:263775
34.Cloudler Id:290,Cloudlet Length:268117
35.Cloudler Id:217,Cloudlet Length:274616
36.Cloudler Id:367,Cloudlet Length:276741
37.Cloudler Id:114,Cloudlet Length:284182
38.Cloudler Id:113,Cloudlet Length:296200
39.Cloudler Id:267,Cloudlet Length:297766
40.Cloudler Id:355,Cloudlet Length:298895
41.Cloudler Id:32,Cloudlet Length:298955
42.Cloudler Id:169,Cloudlet Length:305545
43.Cloudler Id:344,Cloudlet Length:306976
44.Cloudler Id:52,Cloudlet Length:307363
45.Cloudler Id:343,Cloudlet Length:309293
46.Cloudler Id:245,Cloudlet Length:312192
47.Cloudler Id:171,Cloudlet Length:312827
48.Cloudler Id:111,Cloudlet Length:318386
49.Cloudler Id:72,Cloudlet Length:318827
50.Cloudler Id:185,Cloudlet Length:320540
51.Cloudler Id:121,Cloudlet Length:321089
52.Cloudler Id:7,Cloudlet Length:322828
53.Cloudler Id:380,Cloudlet Length:326214
54.Cloudler Id:47,Cloudlet Length:328417
55.Cloudler Id:125,Cloudlet Length:333772
56.Cloudler Id:22,Cloudlet Length:335189
57.Cloudler Id:184,Cloudlet Length:340691
58.Cloudler Id:292,Cloudlet Length:341756
59.Cloudler Id:11,Cloudlet Length:344052
60.Cloudler Id:10,Cloudlet Length:346793
61.Cloudler Id:66,Cloudlet Length:346977
```

0.1: Broker_0: Sending cloudlet 394 to VM #2
0.1: Broker_0: Sending cloudlet 70 to VM #2
0.1: Broker_0: Sending cloudlet 302 to VM #2
0.1: Broker_0: Sending cloudlet 322 to VM #2
0.1: Broker_0: Sending cloudlet 273 to VM #2
0.1: Broker_0: Sending cloudlet 9 to VM #2
0.1: Broker_0: Sending cloudlet 167 to VM #2
0.1: Broker_0: Sending cloudlet 65 to VM #2
0.1: Broker_0: Sending cloudlet 165 to VM #2
0.1: Broker_0: Sending cloudlet 61 to VM #2
0.1: Broker_0: Sending cloudlet 240 to VM #2
0.1: Broker_0: Sending cloudlet 53 to VM #2
0.1: Broker_0: Sending cloudlet 309 to VM #2
0.1: Broker_0: Sending cloudlet 148 to VM #2
0.1: Broker_0: Sending cloudlet 241 to VM #2
0.1: Broker_0: Sending cloudlet 280 to VM #2
0.1: Broker_0: Sending cloudlet 283 to VM #2
0.1: Broker_0: Sending cloudlet 77 to VM #2
0.1: Broker_0: Sending cloudlet 331 to VM #2
0.1: Broker_0: Sending cloudlet 15 to VM #2
0.1: Broker_0: Sending cloudlet 162 to VM #2
0.1: Broker_0: Sending cloudlet 6 to VM #2
0.1: Broker_0: Sending cloudlet 243 to VM #2
0.1: Broker_0: Sending cloudlet 391 to VM #2
0.1: Broker_0: Sending cloudlet 180 to VM #2
0.1: Broker_0: Sending cloudlet 266 to VM #2
0.1: Broker_0: Sending cloudlet 12 to VM #2
0.1: Broker_0: Sending cloudlet 128 to VM #2
0.1: Broker_0: Sending cloudlet 247 to VM #2
0.1: Broker_0: Sending cloudlet 234 to VM #2
0.1: Broker_0: Sending cloudlet 252 to VM #2
0.1: Broker_0: Sending cloudlet 358 to VM #2
0.1: Broker_0: Sending cloudlet 335 to VM #2
0.1: Broker_0: Sending cloudlet 290 to VM #2
0.1: Broker_0: Sending cloudlet 217 to VM #2
0.1: Broker_0: Sending cloudlet 367 to VM #2

195.56: Broker_0: Cloudlet 394 received
405.108: Broker_0: Cloudlet 70 received
684.44: Broker_0: Cloudlet 302 received
993.552000000001: Broker_0: Cloudlet 322 received
1326.164000000002: Broker_0: Cloudlet 273 received
1694.916000000002: Broker_0: Cloudlet 9 received
2195.192: Broker_0: Cloudlet 167 received
2770.696: Broker_0: Cloudlet 65 received
3356.912: Broker_0: Cloudlet 165 received
3996.031999999997: Broker_0: Cloudlet 61 received
4642.66: Broker_0: Cloudlet 240 received
5289.512: Broker_0: Cloudlet 53 received
5940.516: Broker_0: Cloudlet 309 received
6606.048: Broker_0: Cloudlet 148 received
7282.608: Broker_0: Cloudlet 241 received
7972.756: Broker_0: Cloudlet 280 received
8677.764000000001: Broker_0: Cloudlet 283 received
9387.776000000002: Broker_0: Cloudlet 77 received
10121.740000000002: Broker_0: Cloudlet 331 received
10877.604000000001: Broker_0: Cloudlet 15 received
11651.596000000001: Broker_0: Cloudlet 162 received
12484.376000000002: Broker_0: Cloudlet 6 received
13337.940000000002: Broker_0: Cloudlet 243 received
14192.664000000002: Broker_0: Cloudlet 391 received
15066.580000000002: Broker_0: Cloudlet 180 received
15997.808: Broker_0: Cloudlet 266 received
16956.148: Broker_0: Cloudlet 12 received
17931.388000000003: Broker_0: Cloudlet 128 received
18924.556000000004: Broker_0: Cloudlet 247 received
19941.568000000003: Broker_0: Cloudlet 234 received
20967.904000000002: Broker_0: Cloudlet 252 received
22013.244000000002: Broker_0: Cloudlet 358 received
23068.344: Broker_0: Cloudlet 335 received
24140.812: Broker_0: Cloudlet 290 received
25239.276: Broker_0: Cloudlet 217 received
26346.24: Broker_0: Cloudlet 367 received
27482.968: Broker_0: Cloudlet 114 received

925150.812: Broker_0: All Cloudlets executed. Finishing...
 925150.812: Broker_0: Destroying VM #2
 Broker_0 is shutting down...
 Simulation: No more future events
 CloudInformationService: Notify all CloudSim entities for shutting down.
 Datacenter_0 is shutting down...
 Broker_0 is shutting down...
 Simulation completed.
 Simulation completed.

===== OUTPUT =====

Cloudlet ID	STATUS	Data center ID	VM ID	Time	Start Time	Finish Time
394	SUCCESS	02	02	195.46	00.1	195.56
70	SUCCESS	02	02	209.55	195.56	405.11
302	SUCCESS	02	02	279.33	405.11	684.44
322	SUCCESS	02	02	309.11	684.44	993.55
273	SUCCESS	02	02	332.61	993.55	1326.16
09	SUCCESS	02	02	368.75	1326.16	1694.92
167	SUCCESS	02	02	500.28	1694.92	2195.19
65	SUCCESS	02	02	575.5	2195.19	2770.7
165	SUCCESS	02	02	586.22	2770.7	3356.91
61	SUCCESS	02	02	639.12	3356.91	3996.03
240	SUCCESS	02	02	646.63	3996.03	4642.66
53	SUCCESS	02	02	646.85	4642.66	5289.51
309	SUCCESS	02	02	651	5289.51	5940.52
148	SUCCESS	02	02	665.53	5940.52	6606.05
241	SUCCESS	02	02	676.56	6606.05	7282.61
280	SUCCESS	02	02	690.15	7282.61	7972.76
283	SUCCESS	02	02	705.01	7972.76	8677.76
77	SUCCESS	02	02	710.01	8677.76	9387.78
331	SUCCESS	02	02	733.96	9387.78	10121.74
15	SUCCESS	02	02	755.86	10121.74	10877.6
162	SUCCESS	02	02	773.99	10877.6	11651.6
06	SUCCESS	02	02	832.78	11651.6	12484.38
243	SUCCESS	02	02	853.56	12484.38	13337.94
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243	SUCCESS	02	02	853.56	12484.38	13337.94
391	SUCCESS	02	02	854.72	13337.94	14192.66
180	SUCCESS	02	02	873.92	14192.66	15066.58
266	SUCCESS	02	02	931.23	15066.58	15997.81
12	SUCCESS	02	02	958.34	15997.81	16956.15
128	SUCCESS	02	02	975.24	16956.15	17931.39
247	SUCCESS	02	02	993.17	17931.39	18924.56
234	SUCCESS	02	02	1017.01	18924.56	19941.57
252	SUCCESS	02	02	1026.34	19941.57	20967.9
358	SUCCESS	02	02	1045.34	20967.9	22013.24
335	SUCCESS	02	02	1055.1	22013.24	23068.34
290	SUCCESS	02	02	1072.47	23068.34	24140.81
217	SUCCESS	02	02	1098.46	24140.81	25239.28
367	SUCCESS	02	02	1106.96	25239.28	26346.24
114	SUCCESS	02	02	1136.73	26346.24	27482.97
113	SUCCESS	02	02	1184.8	27482.97	28667.77
267	SUCCESS	02	02	1191.06	28667.77	29858.83
355	SUCCESS	02	02	1195.58	29858.83	31054.41
32	SUCCESS	02	02	1195.82	31054.41	32250.23
169	SUCCESS	02	02	1222.18	32250.23	33472.41
344	SUCCESS	02	02	1227.9	33472.41	34700.32
52	SUCCESS	02	02	1229.45	34700.32	35929.77
343	SUCCESS	02	02	1237.17	35929.77	37166.94
245	SUCCESS	02	02	1248.77	37166.94	38415.71
171	SUCCESS	02	02	1251.31	38415.71	39667.02
111	SUCCESS	02	02	1273.54	39667.02	40940.56
72	SUCCESS	02	02	1275.31	40940.56	42215.87
185	SUCCESS	02	02	1282.16	42215.87	43498.03
121	SUCCESS	02	02	1284.36	43498.03	44782.38
07	SUCCESS	02	02	1291.31	44782.38	46073.7
380	SUCCESS	02	02	1304.86	46073.7	47378.55
47	SUCCESS	02	02	1313.67	47378.55	48692.22
125	SUCCESS	02	02	1335.09	48692.22	50027.31
22	SUCCESS	02	02	1340.76	50027.31	51368.06

248	SUCCESS	02	02	3510.61	794626.76	798137.38
345	SUCCESS	02	02	3513.19	798137.38	801650.57
179	SUCCESS	02	02	3528.85	801650.57	805179.42
124	SUCCESS	02	02	3537.45	805179.42	808716.87
339	SUCCESS	02	02	3572.03	808716.87	812288.9
90	SUCCESS	02	02	3600.14	812288.9	815889.04
154	SUCCESS	02	02	3610.98	815889.04	819500.02
386	SUCCESS	02	02	3637.53	819500.02	823137.55
123	SUCCESS	02	02	3648.33	823137.55	826785.88
89	SUCCESS	02	02	3677.12	826785.88	830463
68	SUCCESS	02	02	3684.46	830463	834147.46
286	SUCCESS	02	02	3697.51	834147.46	837844.96
30	SUCCESS	02	02	3714.01	837844.96	841558.98
97	SUCCESS	02	02	3754.04	841558.98	845313.02
168	SUCCESS	02	02	3758.66	845313.02	849071.68
221	SUCCESS	02	02	3785.76	849071.68	852857.44
215	SUCCESS	02	02	3795.12	852857.44	856652.56
182	SUCCESS	02	02	3818.3	856652.56	860470.86
333	SUCCESS	02	02	3877.22	860470.86	864348.08
118	SUCCESS	02	02	3880.6	864348.08	868228.68
374	SUCCESS	02	02	3902.1	868228.68	872130.78
03	SUCCESS	02	02	3920.39	872130.78	876051.16
223	SUCCESS	02	02	3954.15	876051.16	880005.32
383	SUCCESS	02	02	3954.19	880005.32	883959.5
262	SUCCESS	02	02	3992.28	883959.5	887951.79
178	SUCCESS	02	02	3996.13	887951.79	891947.92
132	SUCCESS	02	02	4085.18	891947.92	896033.1
211	SUCCESS	02	02	4086.86	896033.1	900119.96
295	SUCCESS	02	02	4102.74	900119.96	904222.7
314	SUCCESS	02	02	4107.46	904222.7	908330.16
360	SUCCESS	02	02	4178.94	908330.16	912509.09
281	SUCCESS	02	02	4180.19	912509.09	916689.28
150	SUCCESS	02	02	4221.84	916689.28	920911.12
371	SUCCESS	02	02	4239.69	920911.12	925150.81

Makespan using SJF: 230888.87229958395

org.cloudbus.cloudsim.examples.SJF_Scheduler finished!