Ex.No – 05 **Roll no:**210701284

Installation and Configuration of CloudSim in Eclipse IDE

AIM:

To install and configure the CloudSim in Eclipse IDE and run a java program in it.

PROCEDURE:

1. Java Installation:
    a. Check Java in your system.
    b. If Java not installed then download Java.
    c. Install Java setup.
    d. Set the path for Java in Environment Variables.
2. Download Cloud Sim and Additional JAR file:
    a. Download CloudSim 3.0.3
    b. Download common math 3 JAR file
3. Eclipse IDE Installation:
    a. Download the correct version of Eclipse IDE for your system.
    b. Install Eclipse IDE.
4. Run Cloud Sim in Eclipse:
    a. Put the common math 3 JAR file in the JAR folder of CloudSim.
    b. Build a new java project with CloudSim folder.

CODE:

```
package org.cloudbus.cloudsim.examples;
import java.text.DecimalFormat; import
java.util.ArrayList; import
```

```
java.util.Calendar;                    import
java.util.LinkedList; import java.util.List;
import org.cloudbus.cloudsim.Cloudlet;
import org.cloudbus.cloudsim.CloudletSchedulerTimeShared;
import      org.cloudbus.cloudsim.Datacenter;      import
org.cloudbus.cloudsim.DatacenterBroker;            import
org.cloudbus.cloudsim.DatacenterCharacteristics;   import
org.cloudbus.cloudsim.Host;                        import
org.cloudbus.cloudsim.Log;                         import
org.cloudbus.cloudsim.Pe;                          import
org.cloudbus.cloudsim.Storage;                     import
org.cloudbus.cloudsim.UtilizationModel;            import
org.cloudbus.cloudsim.UtilizationModelFull;        import
org.cloudbus.cloudsim.Vm;                          import
org.cloudbus.cloudsim.VmAllocationPolicySimple;    import
org.cloudbus.cloudsim.VmSchedulerTimeShared;       import
org.cloudbus.cloudsim.core.CloudSim; import
org.cloudbus.cloudsim.provisioners.BwProvisionerSimple;
import
org.cloudbus.cloudsim.provisioners.PeProvisionerSimple;
import
org.cloudbus.cloudsim.provisioners.RamProvisionerSimple;
public class CloudSimExample1 { public
static void main(String[] args)
{     Log.printLine("Starting
CloudSimExample1...");try
{ int num_user = 1;
Calendar calendar = Calendar.getInstance(); boolean
trace_flag = false;
CloudSim.init(num_user, calendar, trace_flag);
Datacenter          datacenter0          =
createDatacenter("Datacenter_0");
DatacenterBroker broker = createBroker();
```

```
int brokerId = broker.getId(); vmlist = new
ArrayList<Vm>();int vmid = 0;
int mips = 1000;
long size = 10000;
int ram = 512; long
bw = 1000; int
pesNumber = 1;
String vmm =
"Xen";
Vm vm = new Vm(vmid, brokerId, mips,
pesNumber, ram, bw, size, vmm, new
CloudletSchedulerTimeShared());
vmlist.add(vm);
broker.submitVmList(vmlist);
cloudletList = new
ArrayList<Cloudlet>();
int id = 0; long length
= 400000; long
fileSize = 300; long
outputSize = 300;
UtilizationModel utilizationModel = new
UtilizationModelFull();
Cloudlet cloudlet = new Cloudlet(id, length, pesNumber,fileSize,
outputSize, utilizationModel, utilizationModel, utilizationModel);
cloudlet.setUserId(brokerId); cloudlet.setVmId(vmid);
cloudletList.add(cloudlet);
broker.submitCloudletList(cloudletList);
CloudSim.startSimulation();
CloudSim.stopSimulation();
List<Cloudlet> newList =
broker.getCloudletReceivedList();
printCloudletList(newList);
```

```
Log.printLine("CloudSimExample1
finished!"); 3 catch (Exception e) {
e.printStackTrace();
Log.printLine("Unwanted errors happen");
3
3 private static Datacenter
createDatacenter(String name) {// Create a list
to store our machine List<Host> hostList = new
ArrayList<Host>();
// A Machine contains one or more PEs or
CPUs/Cores. In this example, it will have only one
core. List<Pe> peList = new ArrayList<Pe>(); int
mips = 1000;
// Create PEs and add these into a list.
peList.add(new Pe(0, new
PeProvisionerSimple(mips))); // need to store Pe id and
MIPS Rating
// Create Host with its id and list of PEs and add
them to the list of machines
int hostId = 0; int ram = 2048; // host
memory (MB) long storage = 1000000;
// host storage
int bw = 10000;
hostList.add(
new
Host( hostId, new
RamProvisionerSimple(ram),
new BwProvisionerSimple(bw),
storage,
peList,
new VmSchedulerTimeShared(peList)
)
); // This is our machine
```

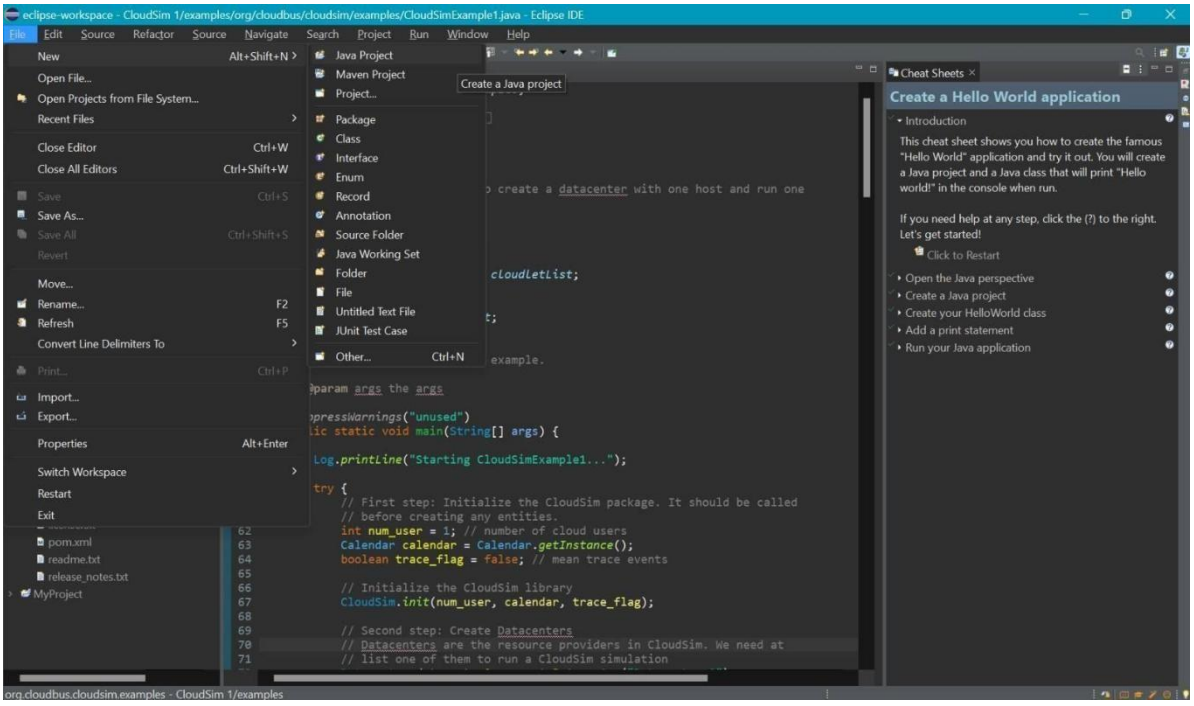
```
String arch = "x86"; // system architecture
String os = "Linux"; // operating system String
vmm = "Xen"; double time_zone = 10.0; // time
zone this resource located double cost = 3.0;
double costPerMem = 0.05; double
costPerStorage = 0.001 double costPerBw = 0.0;
// the cost of using bw in
this resource
LinkedList<Storage> storageList = newLinkedList<Storage>();
DatacenterCharacteristics characteristics = new
DatacenterCharacteristics(
arch, os, vmm, hostList, time_zone, cost, costPerMem,
costPerStorage, costPerBw); // Finally, create a
Datacenter object. Datacenter datacenter = null; try {
datacenter = new Datacenter(name,
characteristics, new VmAllocationPolicySimple(hostList),
storageList, 0); 3 catch (Exception e)
{e.printStackTrace();
3
return datacenter;
3
/**
* Creates the broker.
*
* @return the datacenter broker
*/
private static DatacenterBroker createBroker()
{DatacenterBroker broker = null;
try {
broker = new DatacenterBroker("Broker");
3 catch (Exception e)
{ e.printStackTrace();
return null;
```

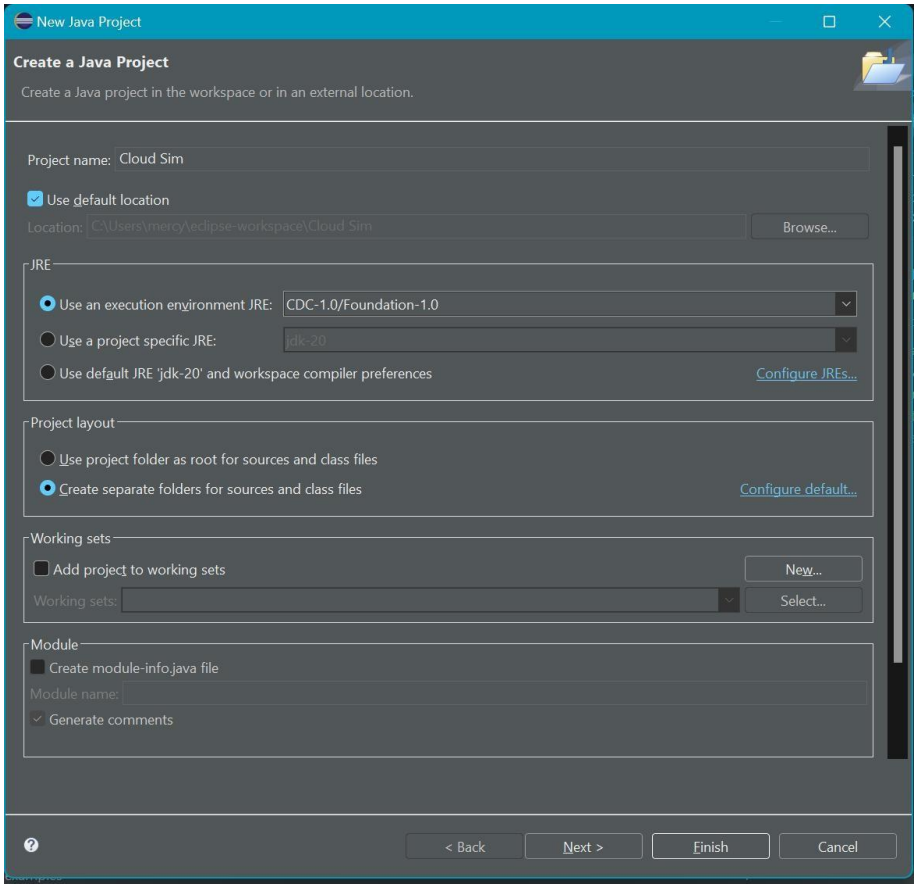
```
3        return
broker;
3
list list of Cloudlets
*/
list) {
private  static  void  printCloudletList(List<Cloudlet>
int size = list.size();Cloudlet cloudlet;
String indent = " ";
Log.printLine();
Log.printLine("==========  OUTPUT  ==========");
Log.printLine("Cloudlet ID" + indent + "STATUS" +
indent
+ "Data  center  ID"  +  indent  +  "VM  ID"  +
indent + "Time" + indent
+ "Start Time" + indent + "Finish Time"); DecimalFormat
dft = new DecimalFormat("###.##");
for  (int  i  =  0;  i  <  size;  i++)  {
cloudlet = list.get(i);
Log.print(indent + cloudlet.getCloudletId() +
indent + indent);
if (cloudlet.getCloudletStatus() ==
Cloudlet.SUCCESS) {
Log.print("SUCCESS");
Log.printLine(indent  +  indent
+  cloudlet.getResourceId()  +
indent  +  indent  +  indent  +
cloudlet.getVmId()
+ indent + indent
+
dft.format(cloudlet.getActualCPUTime()) + indent
+ indent +
```

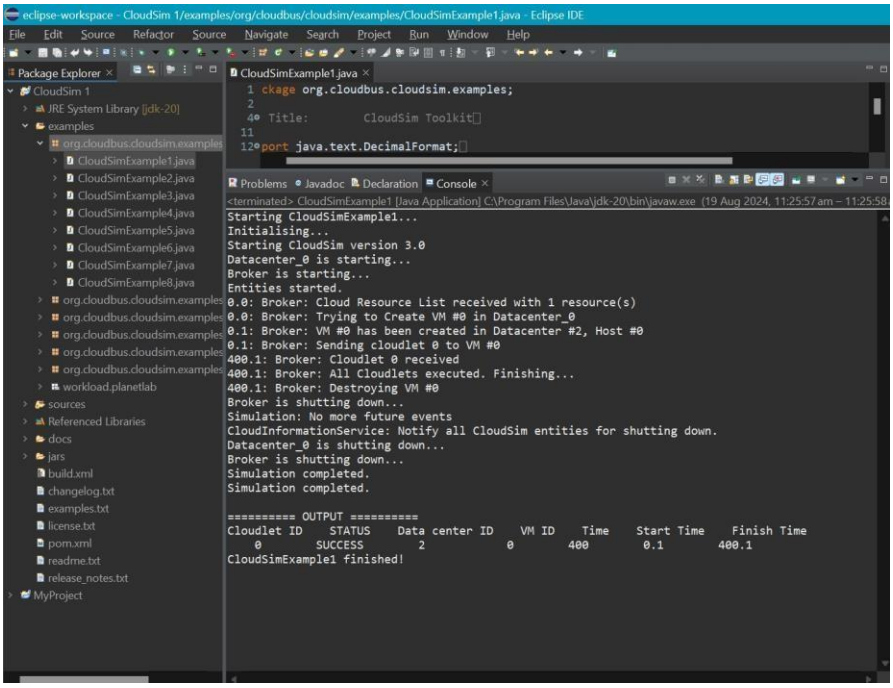
```
dft.format(cloudlet.getExecStartTime())
+ indent + indent
+
dft.format(cloudlet.getFinishTime()));
3
3
3
}
```

OUTPUT:


eclipseinstaller by Oomph
SPONSOR
Eclipse IDE for Java Developers
details
The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration.
Java 21+ VM
tj/jres/22/updates/release/latest
Installation Folder
C:\Users\eclipse\java-2024-062
create start menu entry
create desktop shortcut
INSTALL
BACK


eclipse-workspace - CloudSim 1/examples/org/cloudbus/cloudsim/examples/CloudSimExample1.java - Eclipse IDE
File Edit Source Refactor Source Navigate Search Project Run Window Help
New Alt+Shift+N
Open File...
Open Projects from File System...
Recent Files
Close Editor Ctrl+W
Close All Editors Ctrl+Shift+W
Save Ctrl+S
Save As...
Save All Ctrl+Shift+S
Revert
Move...
Rename... F2
Refresh F5
Convert Line Delimiters To
Print... Ctrl+P
Import...
Export...
Properties Alt+Enter
Switch Workspace
Restart
Exit
Java Project
Maven Project
Project...
Create a Java project
Package
Class
Interface
Enum
Record
Annotation
Source Folder
Java Working Set
Folder
File
Untitled Text File
JUnit Test Case
Other... Ctrl+N
Cheat Sheets
Create a Hello World application
Introduction
This cheat sheet shows you how to create the famous "Hello World" application and try it out. You will create a Java project and a Java class that will print "Hello world!" in the console when run.
If you need help at any step, click the (?) to the right. Let's get started!
Click to Restart
Open the Java perspective
Create a Java project
Create your HelloWorld class
Add a print statement
Run your Java application
pom.xml
readme.txt
release_notes.txt
MyProject
org.cloudbus.cloudsim.examples - CloudSim 1/examples


New Java Project
Create a Java Project
Create a Java project in the workspace or in an external location.
Project name: Cloud Sim
Use default location
Location: C:\Users\mercy\eclipse-workspace\Cloud Sim
Browse...
JRE
Use an execution environment JRE: CDC-1.0/Foundation-1.0
Use a project specific JRE: jdk-20
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
New...
Working sets:
Select...
Module
Create module-info.java file
Module name:
Generate comments
< Back
Next >
Finish
Cancel


eclipse-workspace - CloudSim 1/examples/org/cloudbus/cloudsim/examples/CloudSimExample1.java - Eclipse IDE
File Edit Source Refactor Source Navigate Search Project Run Window Help
Package Explorer
CloudSim 1
JRE System Library [jdk-20]
examples
org.cloudbus.cloudsim.examples
CloudSimExample1.java
CloudSimExample2.java
CloudSimExample3.java
CloudSimExample4.java
CloudSimExample5.java
CloudSimExample6.java
CloudSimExample7.java
CloudSimExample8.java
org.cloudbus.cloudsim.examples
org.cloudbus.cloudsim.examples
org.cloudbus.cloudsim.examples
org.cloudbus.cloudsim.examples
org.cloudbus.cloudsim.examples
workload.planetlab
sources
Referenced Libraries
docs
jars
build.xml
changelog.txt
examples.txt
license.txt
pom.xml
readme.txt
release_notes.txt
MyProject
CloudSimExample1.java
1 ckage org.cloudbus.cloudsim.examples;
2
4* Title: CloudSim Toolkit
11
12*port java.text.DecimalFormat;
Problems Javadoc Declaration Console
<terminated> CloudSimExample1 [Java Application] C:\Program Files\Java\jdk-20\bin\javaw.exe (19 Aug 2024, 11:25:57 am – 11:25:58
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!

RESULT:

Thus, the installation and configuration of CloudSim in Eclipse IDE has been successfully completed.