



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

Discover. Learn. Empower.

## Experiment 1.3

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**Semester: 6<sup>th</sup>**

**Subject Name: Cloud Computing and  
Distributed Systems Lab**

**UID: 21BCS10155**

**Section/Group: 616-B**

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**Subject Code: 21CSP-378**

### 1. Aim:

Installation of Cloud Sim tool and IDE

### 2. Objective:

To install cloud sim tool , IDE and simulate core functionality of cloud

### 3. Procedure:

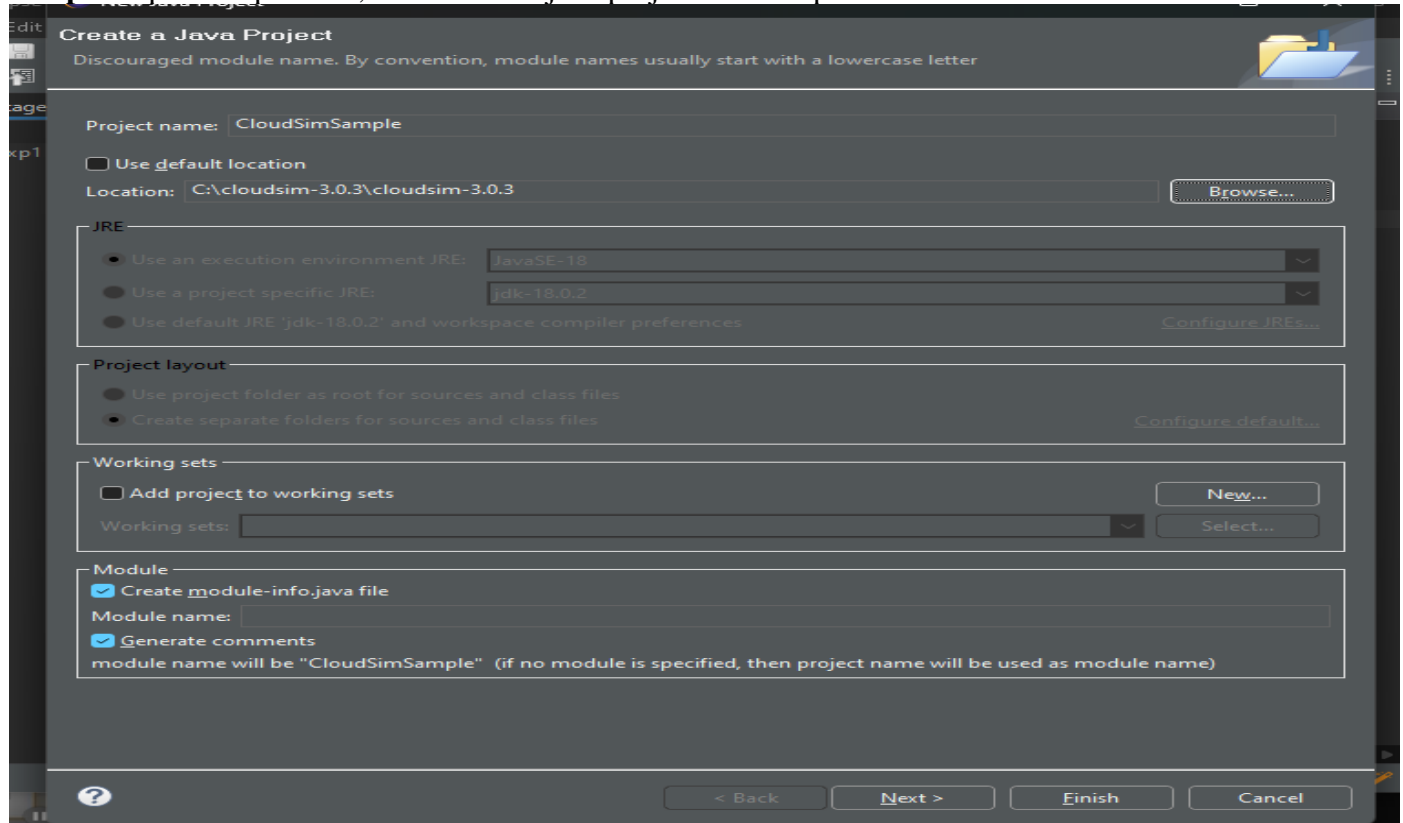
**Step 1:** Install Eclipse IDE for java developers:

**Step 2:** Download Cloud Sim source Code.

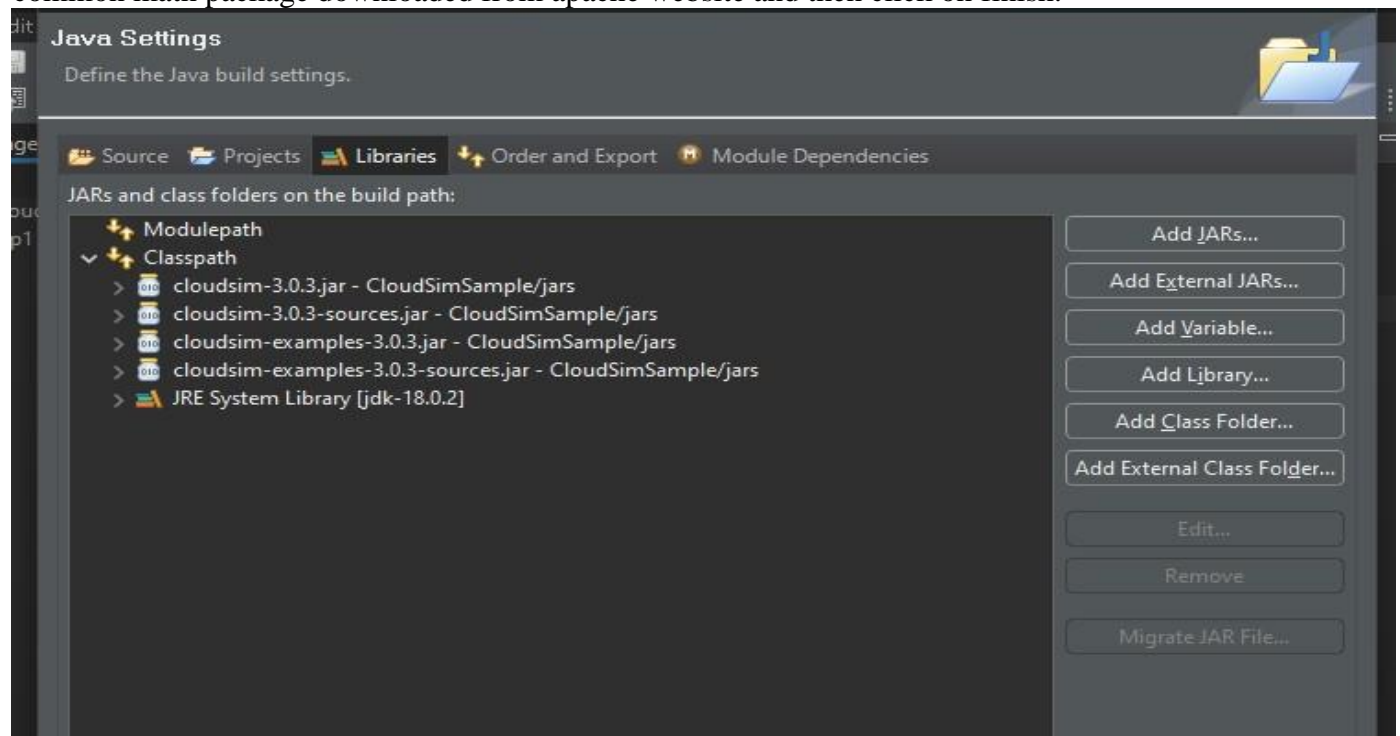
**Step 3:** Download the Common math package from apache website.



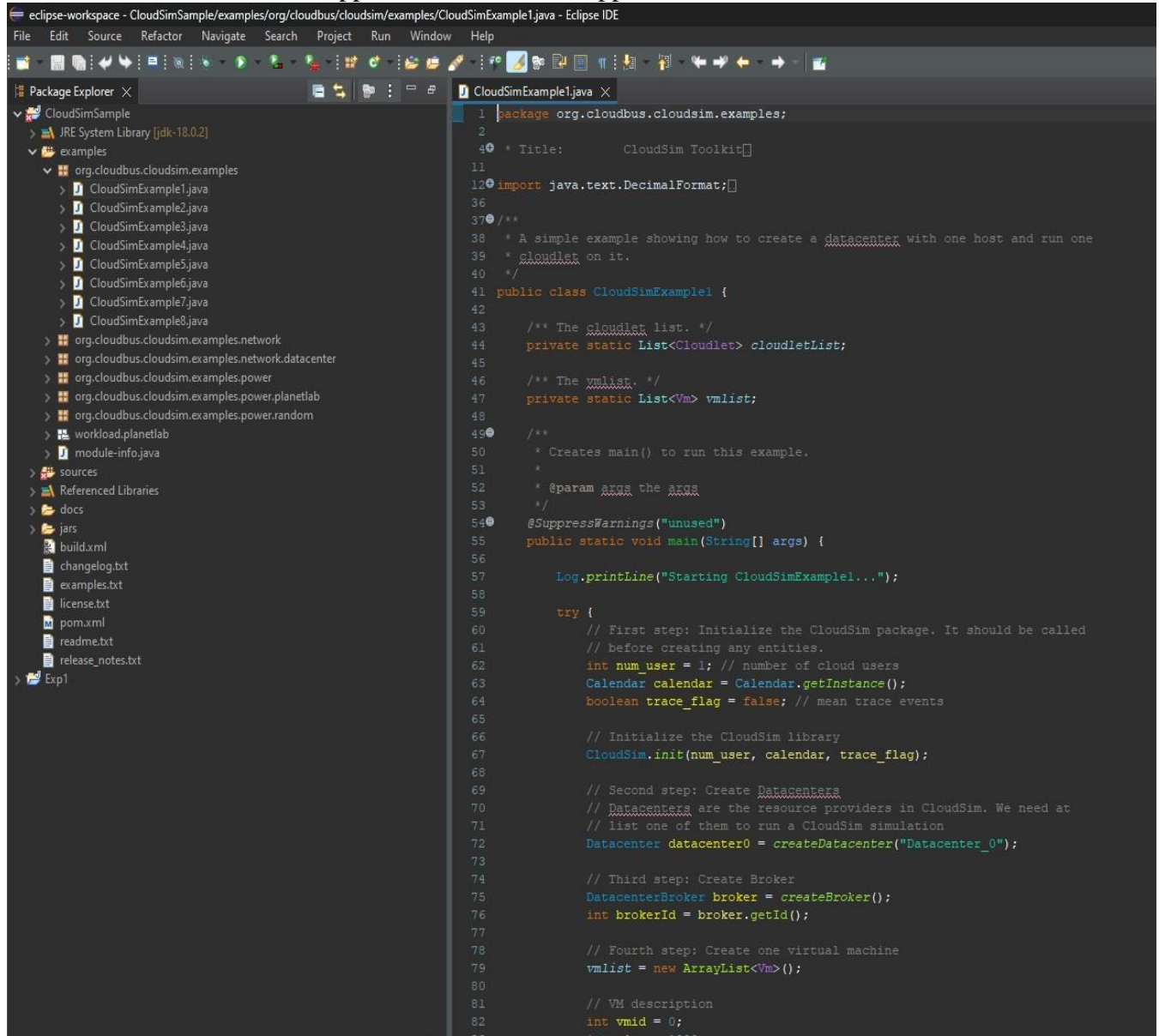
**Step 4:** Open Eclipse IDE, Create a new java project and add path of Cloud sim Source code.



**Step 5:** Click on Next, then go to libraries , Add external JARs and add the JAR file from the common math package downloaded from apache website and then click on finish.



**Step 6:** After configuring the new Project, Go to file and open a new java executable file ,  
Writethe source code for the application and run the application.



```

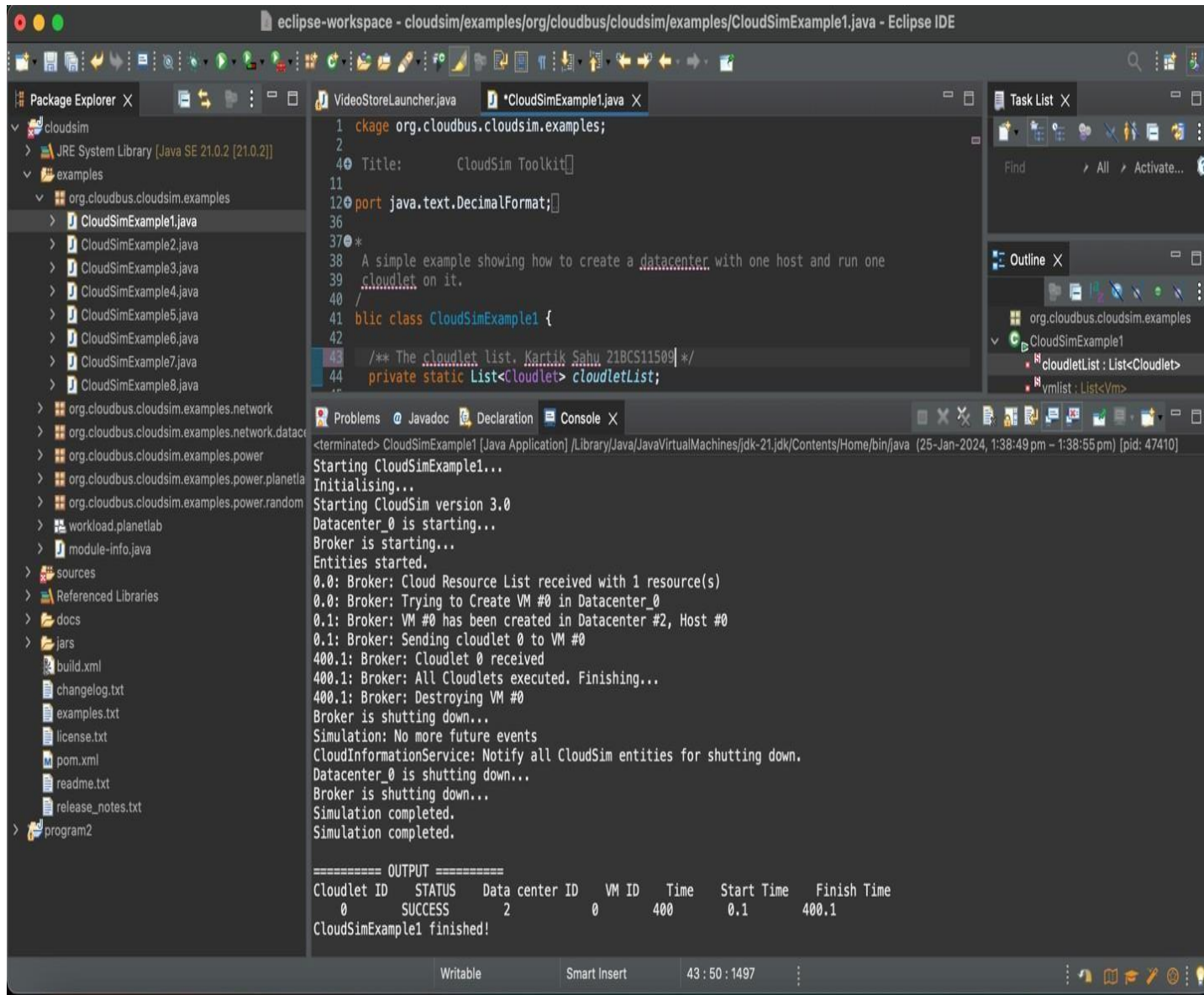
eclipse-workspace - CloudSimSample/examples/org/cloudbus/cloudsim/examples/CloudSimExample1.java - Eclipse IDE
File Edit Source Refactor Navigate Search Project Run Window Help

Package Explorer
CloudSimSample
  JRE System Library [jdk-18.0.2]
  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.network
    org.cloudbus.cloudsim.examples.network.datacenter
    org.cloudbus.cloudsim.examples.power
    org.cloudbus.cloudsim.examples.power.planetlab
    org.cloudbus.cloudsim.examples.power.random
    workload.planetlab
    module-info.java
  sources
  Referenced Libraries
  docs
  jars
    build.xml
    changelog.txt
    examples.txt
    license.txt
    pom.xml
    readme.txt
    release_notes.txt
  Exp1

CloudSimExample1.java
1 package org.cloudbus.cloudsim.examples;
2
3 * Title: CloudSim Toolkit
4
11
12 import java.text.DecimalFormat;
13
36
37 /**
38  * A simple example showing how to create a datacenter with one host and run one
39  * cloudlet on it.
40  */
41 public class CloudSimExample1 {
42
43     /** The cloudlet list. */
44     private static List<Cloudlet> cloudletList;
45
46     /** The vm list. */
47     private static List<Vm> vmList;
48
49     /**
50      * Creates main() to run this example.
51      *
52      * @param args the args
53      */
54     @SuppressWarnings("unused")
55     public static void main(String[] args) {
56
57         Log.println("Starting CloudSimExample1...");
58
59         try {
60             // First step: Initialize the CloudSim package. It should be called
61             // before creating any entities.
62             int num_user = 1; // number of cloud users
63             Calendar calendar = Calendar.getInstance();
64             boolean trace_flag = false; // mean trace events
65
66             // Initialize the CloudSim library
67             CloudSim.init(num_user, calendar, trace_flag);
68
69             // Second step: Create Datacenters
70             // Datacenters are the resource providers in CloudSim. We need at
71             // list one of them to run a CloudSim simulation
72             Datacenter datacenter0 = createDatacenter("Datacenter_0");
73
74             // Third step: Create Broker
75             DatacenterBroker broker = createBroker();
76             int brokerId = broker.getId();
77
78             // Fourth step: Create one virtual machine
79             vmList = new ArrayList<Vm>();
80
81             // VM description
82             int vmid = 0;
83
84             // ...

```

**Output:**



The screenshot shows the Eclipse IDE interface with the following components:

- Package Explorer:** Shows the project structure with packages like `org.cloudbus.cloudsim.examples` and `org.cloudbus.cloudsim.examples.network`.
- Editor:** Displays the code for `CloudSimExample1.java`. The code includes package declarations, imports, and a main class `CloudSimExample1` that sets up a datacenter and runs a simulation.
- Task List:** Shows a list of tasks or errors.
- Outline:** Shows the class structure of `CloudSimExample1`.
- Problems:** Shows any compilation or runtime errors.
- Console:** Displays the output of the simulation, including startup messages, resource allocation, and completion status.

**Console Output:**

```
<terminated> CloudSimExample1 [Java Application] /Library/Java/JavaVirtualMachines/jdk-21.jdk/Contents/Home/bin/java (25-Jan-2024, 1:38:49 pm - 1:38:55 pm) [pid: 47410]
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!
```

#### 4. Learning Outcomes:

- Learned how to install and use Eclipse IDE
- Learned how to install Cloud sim IDE and how to use it with eclipse
- Learned how to simulate in Eclipse using cloud sim IDE.