

CS553 Cloud Computing
Programming Assignment 3
Manual

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The assignment is consists Local System and Remote System, both the Frameworks were done in Java and Remote framework runs on Amazon AWS Resources like Ec2 instances,Sqs,s3 and DynamoDb,Here are following frameworks consists of:.

1.Local System

- Client.java
- Sqs.java
- Tasks.txt

2. Remote System

- Client.java
- Workerrun.java

1.Local System: The Local System Framework code has been written in java. It consists of two parts.one is client side and another is Local BackEnd Workers(Sqs.java).

Execution:

The program is run on Local System.

To execute the program in Linux systems.

First Open terminal and compile the both the programs i.e run the command **javac Client.java and java Sqs.java.**

To execute the Main programs as follow:

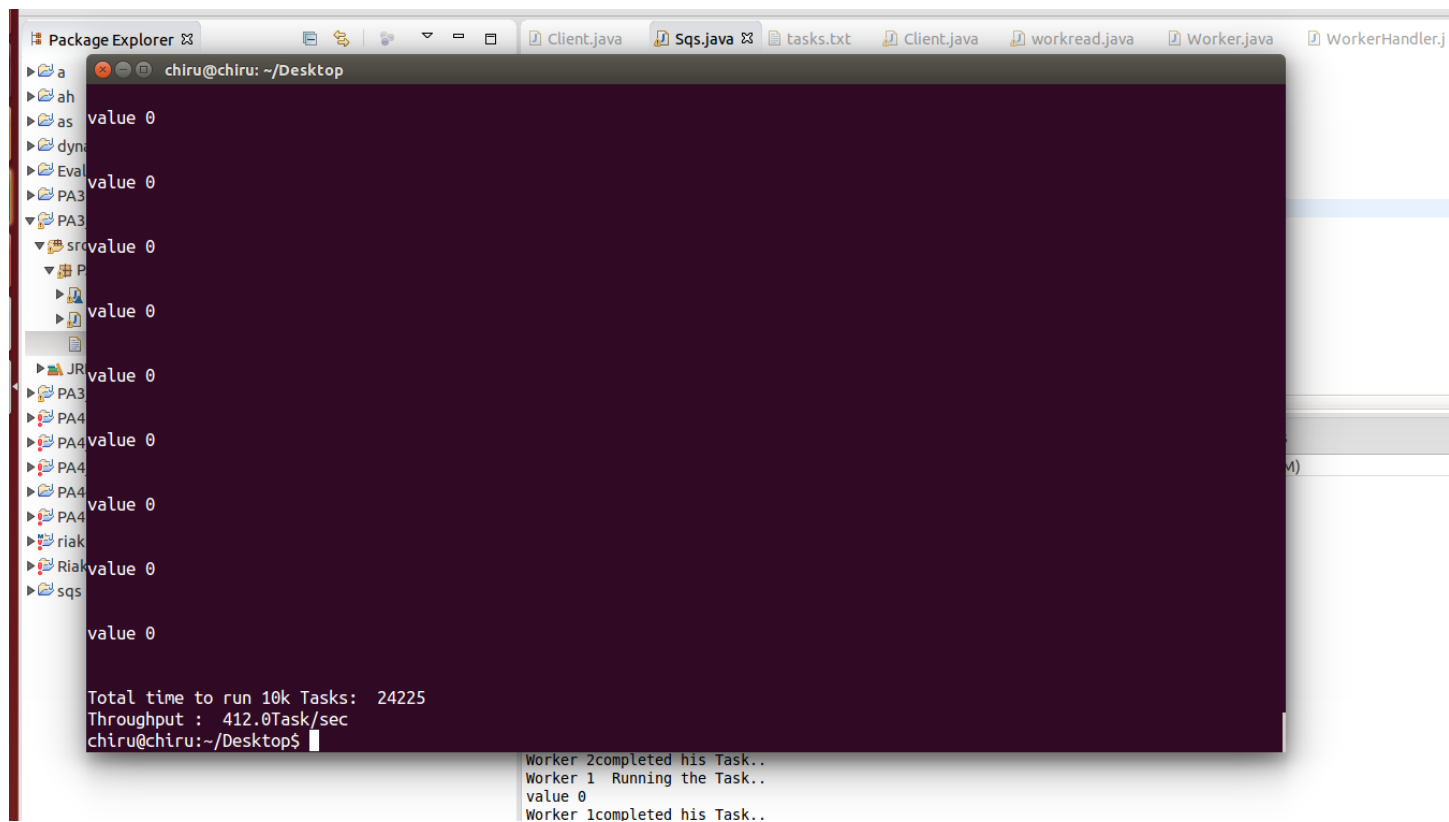
1. Client.java

Client .java program can be executed and users would have the choice to enter the Queue name and the local file which contains all the tasks to be executed..

After Running the above command,All the tasks in a tasks.txt will be read and sent the all tasks to Sqs.

The sample output of the program would be like:

When Sqs Performs all the Tasks and gives the result About the Task Execution:



Sqs.java

To run the Sqs program, First Open terminal and run the command **javac Sqs.java** and
.Select the Nuber of threads:

[illegible]

Number of workers/threads:1

[illegible]

Number of workers/threads:2

Problems @ Javadoc Declaration Console EC2 AMIs AWS Explorer EC2 Instances

sq [Java Application] /usr/lib/jvm/java-7-openjdk-amd64/bin/java (Apr 29, 2016, 10:17:28 AM)

```
Worker 4completed his Task..
Worker 1 Running the Task..
value 0
Worker 1completed his Task..
Worker 2 Running the Task..
value 0
Worker 2completed his Task..
Worker 3 Running the Task..
value 0
Worker 3completed his Task..
Worker 4 Running the Task..
value 0
Worker 4completed his Task..
Worker 1 Running the Task..
value 0
Worker 1completed his Task..
Worker 2 Running the Task..
value 0
Worker 2completed his Task..
Worker 3 Running the Task..
value 0
Worker 3completed his Task..
Worker 4 Running the Task..
value 0
Worker 4completed his Task..
Worker 1 Running the Task..
value 0
Worker 1completed his Task..
Worker 2 Running the Task..
value 0
```

Number of workers/threads:4

```
Problems @ Javadoc Declaration Console EC2 AMIs AWS Explorer EC2 Instances
Sqs [Java Application] /usr/lib/jvm/java-7-openjdk-amd64/bin/java (Apr 29, 2016, 11:00:46 AM)
value 0
Worker 2 Running the Task..
Worker 4completed his Task..
Worker 3 Running the Task..
value 0
Worker 1completed his Task..
value 0
Worker 2completed his Task..
Worker 4 Running the Task..
value 0
Worker 1 Running the Task..
Worker 3completed his Task..
Worker 2 Running the Task..
value 0
Worker 4completed his Task..
value 0
Worker 1completed his Task..
Worker 3 Running the Task..
value 0
Worker 4 Running the Task..
Worker 2completed his Task..
value 0
Worker 3completed his Task..
Worker 1 Running the Task..
value 0
Worker 2 Running the Task..
Worker 4completed his Task..
value 0
Worker 1completed his Task..
Worker 3 Running the Task..
```

Number of workers/threads:8

```
Problems @ Javadoc Declaration Console EC2 AMIs AWS Explorer EC2 Instances
Sqs [Java Application] /usr/lib/jvm/java-7-openjdk-amd64/bin/java (Apr 29, 2016, 10:19:42 AM)
Worker 8 Running the Task..
value 0
Worker 8completed his Task..
Worker 1 Running the Task..
value 0
Worker 1completed his Task..
Worker 2 Running the Task..
value 0
Worker 2completed his Task..
Worker 3 Running the Task..
value 0
Worker 3completed his Task..
Worker 4 Running the Task..
value 0
Worker 4completed his Task..
Worker 5 Running the Task..
value 0
Worker 5completed his Task..
Worker 6 Running the Task..
value 0
Worker 6completed his Task..
Worker 7 Running the Task..
value 0
Worker 7completed his Task..
Worker 8 Running the Task..
value 0
Worker 8completed his Task..
Worker 1 Running the Task..
value 0
Worker 1completed his Task..
```

Number of workers/threads:16

```
Total time to run 10k Tasks: 25228
Throughput : 396.0Task/sec
chiru@chiru:~/Desktop$
Worker 12completed his Task..
Worker 13 Running the Task..
value 0
Worker 13completed his Task..
Worker 14 Running the Task..
value 0
Worker 14completed his Task..
Worker 15 Running the Task..
value 0
Worker 15completed his Task..
Worker 16 Running the Task..
value 0
Worker 16completed his Task..
All tasks were Done..
```

We are Performing Both Throughput and Efficiency on the Different Tasks:

```
Total time to run 10k Tasks: 25228
Throughput : 396.0Task/sec
chiru@chiru:~/Desktop$
Worker 12completed his Task..
```

2.Remote System: The Remote System Framework code has been written in java. It consists of two parts.I have used Amazon Aws Services Ec2 instance,Sqs,S3,and DynamoDb.one is client side and another is Remote BackEnd Workers(Sqs.java).

Execution:

The program is run on Local System.

To execute the program in Linux systems.

First Open terminal and compile the both the programs i.e run the command **javac Client.java and java Sqs.java.**

To execute the Main programs as follow:

1. Client.java

Client .java program can be executed and users would have the choice to enter the Queue name(I have created Sqs i.e SQSqueue and the local file which contains all the tasks to be executed..

The sample output of the program would be like: After Running the above command, All the tasks in a tasks.txt will be read and sent to Sqs.

```
Task 132 sent to SQS
Task 133 sent to SQS
Task 134 sent to SQS
Task 135 sent to SQS
Task 136 sent to SQS
Task 137 sent to SQS
Task 138 sent to SQS
Task 139 sent to SQS
Task 140 sent to SQS
Task 141 sent to SQS
Task 142 sent to SQS
Task 143 sent to SQS
Task 144 sent to SQS
Task 145 sent to SQS
Task 146 sent to SQS
Task 147 sent to SQS
Task 148 sent to SQS
Task 149 sent to SQS
Task 150 sent to SQS
Task 151 sent to SQS
Task 152 sent to SQS
Task 153 sent to SQS
Task 154 sent to SQS
Task 155 sent to SQS
```

When Sqs Performs all the Tasks and gives the result About the Task Execution:

Java - Amazon SQS Queue Editor - JobQueue1e - Eclipse

Client.java workread.java Worker.java WorkerHandler.java Response.java Requests.java Sqs.java SimpleQueueServiceSample.java JobQueue1e

Package Ex

src (default package)

- AmazonDynamoDBS
- Client.java
- CreateSecurityGroup
- GettingStartedApp.j
- InlineGettingStarted
- Job.java
- Requests.java
- Response.java
- S3Sample.java
- SimpleQueueService**
- Worker.java
- WorkerHandler.java
- workread.java
- JRE System Library [Jav
- AWS SDK for Java [1.10.
- PA4
- PA4_Cassandra
- PA4_Oracle
- PA4-MongoDb
- PA4Riak
- riak
- Riak
- sqs

Retention Period: 345600
Max Message Size: 262144
Created: 1461966971
Visibility Timeout: 30
Queue ARN: arn:aws:sqs:us-west-2:104216196862:JobQueue1e
Approx. Message Count: 81
Message Delay (seconds): 0

Message Sampling

ID	Body	Sent	Sender
3bf4fb1b-c9a9-4e7c-bb82-aad63132dfb6	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
83c4f807-5dd5-45bc-b089-4fbf17a468df	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
af227b91-1672-4ab5-b525-b4d29d6f978d	Sleep 1000	Apr 29, 2016 4:56:14 PM	104216196862
1ff76234-c0dc-41a6-9541-d862b0121ff2	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
d80b5dab-22bb-4c45-a6ea-936416cec26d	Sleep 1000	Apr 29, 2016 4:56:13 PM	104216196862
ab926389-eca0-4c1a-b959-6c9ee325973a	Sleep 1000	Apr 29, 2016 4:56:15 PM	104216196862
542b1bd8-4822-431b-a3ab-0e5885e76d1e	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
964de7ad-d1aa-4ac1-bdcb-1f2b054a3630	Sleep 1000	Apr 29, 2016 4:56:14 PM	104216196862
89bc8420-3915-417f-8c72-265895e9ebc6	Sleep 1000	Apr 29, 2016 4:56:11 PM	104216196862
956231de-bd6d-4122-9002-99cd3ab751e2	Sleep 1000	Apr 29, 2016 4:56:15 PM	104216196862
2b2c258b-60ff-478c-baf3-5883b2ff0a63	Sleep 1000	Apr 29, 2016 4:56:13 PM	104216196862
2a241412-29ae-4aca-a797-f77c190b88ee	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
20246580-0d04-4292-be69-771a52cdca87	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862
c48d91d3-551e-4f73-a6c3-951449467259	Sleep 1000	Apr 29, 2016 4:56:13 PM	104216196862
ac2d49fe-ac90-4410-b780-d6321f7c521f	Sleep 1000	Apr 29, 2016 4:56:14 PM	104216196862
efa5d184-2362-4c95-902e-6300be5304e9	Sleep 1000	Apr 29, 2016 4:56:13 PM	104216196862
d07677e9-6d81-43a9-9073-a62e51ba0278	Sleep 1000	Apr 29, 2016 4:56:12 PM	104216196862

Problems Javadoc Declaration Console EC2 AMIs AWS Explorer EC2 Instances

- Amazon SNS
- Amazon S3
- Amazon Identity Management
- Amazon SQS
- JobQueue1e**
- Amazon SimpleDB
- Amazon EC2
- Amazon CloudFront
- Amazon DynamoDB

We are Performing Both Throughput and Efficiency on the Different Tasks:

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
value 0
```

```
Total time to run 100 Tasks: 7208  
Efficiency : 13.0%
```

- **Workerrun.java**

To run the Sqs program, First Open terminal and run the command **javac Sqs.java** and Select the Number of threads:

Number of workers/threads:1

```
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0

Total time to run 100 Tasks: 3645
Throughput : 27.0Task/sec
```

Number of workers/threads:2

```
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0
value 0

Total time to run 100 Tasks: 4266
Efficiency : 23.0%
```

Number of workers/threads:4

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

Total time to run 100 Tasks: 4872

Efficiency : 20.0%

Number of workers/threads:8

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

Total time to run 100 Tasks: 7208

Efficiency : 13.0%

Number of workers/threads:16

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

value 0

Total time to run 100 Tasks: 11937

Efficiency : 8.0%

Time taken for 100 tasks: 11937

DyanamoDb:It was to used to Eliminate Duplicate Task Execution.

DynamoDB

Dashboard

Tables

Reserved capacity

Create table

Actions

Filter by table name

X

Name

TASKS

TASKS

Close

Overview

Items

Metrics

Alarms

Capacity

Indexes

Triggers

Access control

Create item

Actions

Scan: [Table] TASKS: taskID

Viewing 1 to 6

Scan

[Table] TASKS: taskID

+

Add filter

Start search

<input type="checkbox"/>	taskID	taskInfo
<input type="checkbox"/>	2	2 sleep 10
<input type="checkbox"/>	1	1 sleep 10
<input type="checkbox"/>	0	0 sleep 10