CSE445/598 Assignment 2

598 Group 1 Report

1. Developers and contribution
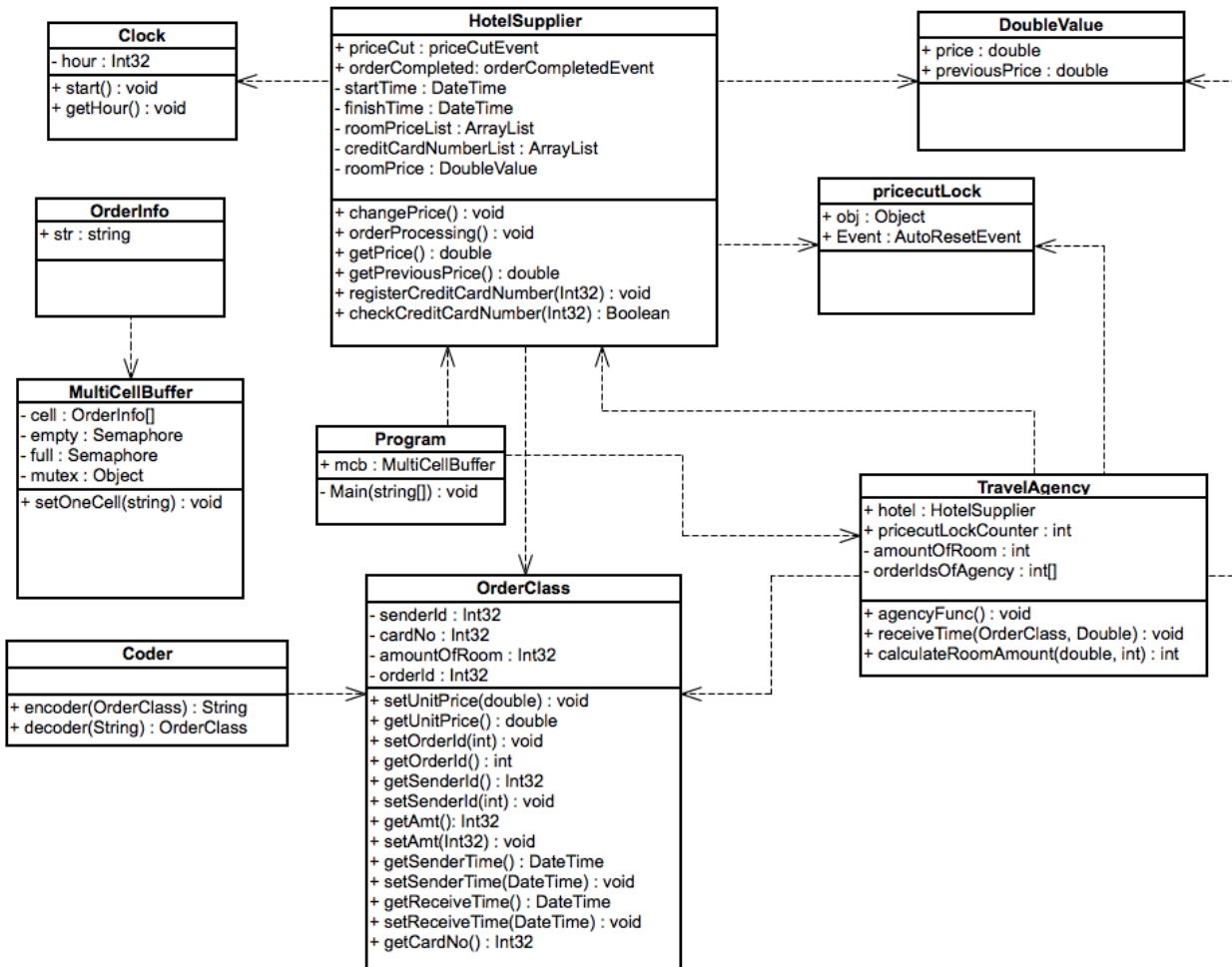
Hao Yan: 25%

Jie Guo: 25%

Shihuan Shao: 25%

Yunlong Jiang: 25%

2. Class Diagram

3. Test Guide

Development environment used: Microsoft Virtual Studio 2010 in Win 7

Loading the program: Use VS2010 to open 'HotelBookingSystem.sln'.

Press F5 to run it.

Input: none

Expected output: Whenever price drops (price wave is sine function), we can see the value it dropped. 10 agencies will generate an order one by one. We can see the unitPrice of room, amount of room, amount of charge, time to proceed one order. After 10 times price-drop, we can see the total time used by HotelSupplier thread.

4. Screenshot of input and output

```
        No.1 Price-cut Availble 121, 38.1695 Off From Previous Price 159

Order ID: 1, Agency ID: 4, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.1560308

Order ID: 1, Agency ID: 10, UnitPrice of Room: 121, Amount of Room: 65, Amount o
f Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15
, Time to process the order: 00:00:03.3160399

Order ID: 1, Agency ID: 3, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.4550479

Order ID: 1, Agency ID: 2, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.5830552

Order ID: 1, Agency ID: 8, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.7050622

Order ID: 1, Agency ID: 5, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.8490704

Order ID: 1, Agency ID: 6, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:15,
 Time to process the order: 00:00:03.9790778

Order ID: 1, Agency ID: 1, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:16,
 Time to process the order: 00:00:04.1070852

Order ID: 1, Agency ID: 9, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:16,
 Time to process the order: 00:00:04.2590939

Order ID: 1, Agency ID: 7, UnitPrice of Room: 121, Amount of Room: 65, Amount of
 Charge: 8680, Start Time: 2013/2/17 1:35:12, Completed Time: 2013/2/17 1:35:16,
 Time to process the order: 00:00:04.3811008
```

```
           No.2 Price-cut Availble 105, 16.4632 Off From Previous Price 121

Order ID: 2, Agency ID: 10, UnitPrice of Room: 105, Amount of Room: 57, Amount o
f Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18
, Time to process the order: 00:00:01.1732033

Order ID: 2, Agency ID: 9, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.2992105

Order ID: 2, Agency ID: 7, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.4292180

Order ID: 2, Agency ID: 2, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.5712261

Order ID: 2, Agency ID: 4, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.7042337

Order ID: 2, Agency ID: 1, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.8312410

Order ID: 2, Agency ID: 6, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:18,
 Time to process the order: 00:00:01.9742492

Order ID: 2, Agency ID: 8, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:19,
 Time to process the order: 00:00:02.1042566

Order ID: 2, Agency ID: 3, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:19,
 Time to process the order: 00:00:02.2702661

Order ID: 2, Agency ID: 5, UnitPrice of Room: 105, Amount of Room: 57, Amount of
 Charge: 6582, Start Time: 2013/2/17 1:35:17, Completed Time: 2013/2/17 1:35:19,
 Time to process the order: 00:00:02.3972733
```

```
              No.3 Price-cut Availble 156, 12.0656 Off From Previous Price 168

Order ID: 3, Agency ID: 7, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.2245495

Order ID: 3, Agency ID: 2, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.3495566

Order ID: 3, Agency ID: 6, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.4865644

Order ID: 3, Agency ID: 8, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.6115716

Order ID: 3, Agency ID: 9, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.7665805

Order ID: 3, Agency ID: 1, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:24,
 Time to process the order: 00:00:01.9255895

Order ID: 3, Agency ID: 5, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:25,
 Time to process the order: 00:00:02.0545969

Order ID: 3, Agency ID: 4, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:25,
 Time to process the order: 00:00:02.1786040

Order ID: 3, Agency ID: 3, UnitPrice of Room: 156, Amount of Room: 53, Amount of
 Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:25,
 Time to process the order: 00:00:02.3086115

Order ID: 3, Agency ID: 10, UnitPrice of Room: 156, Amount of Room: 53, Amount o
f Charge: 9095, Start Time: 2013/2/17 1:35:23, Completed Time: 2013/2/17 1:35:25
, Time to process the order: 00:00:02.4346187
```

```
              No.4 Price-cut Availble 239, 0.5304 Off From Previous Price 240

Order ID: 4, Agency ID: 10, UnitPrice of Room: 239, Amount of Room: 50, Amount o
f Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:3
0, Time to process the order: 00:00:01.2428937

Order ID: 4, Agency ID: 2, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:30
, Time to process the order: 00:00:01.3739012

Order ID: 4, Agency ID: 7, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:30
, Time to process the order: 00:00:01.5039086

Order ID: 4, Agency ID: 3, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:30
, Time to process the order: 00:00:01.6449167

Order ID: 4, Agency ID: 6, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:30
, Time to process the order: 00:00:01.7909250

Order ID: 4, Agency ID: 1, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:30
, Time to process the order: 00:00:01.9189323

Order ID: 4, Agency ID: 8, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:31
, Time to process the order: 00:00:02.0449396

Order ID: 4, Agency ID: 4, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:31
, Time to process the order: 00:00:02.1759470

Order ID: 4, Agency ID: 9, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:31
, Time to process the order: 00:00:02.3009542

Order ID: 4, Agency ID: 5, UnitPrice of Room: 239, Amount of Room: 50, Amount of
 Charge: 13179, Start Time: 2013/2/17 1:35:29, Completed Time: 2013/2/17 1:35:31
, Time to process the order: 00:00:02.4259613
```

```
          No.5 Price-cut Availble 423, 98.6324 Off From Previous Price 521

Order ID: 5, Agency ID: 5, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:05 AM, Time to process the order: 00:00:01.6135192

Order ID: 5, Agency ID: 8, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:05 AM, Time to process the order: 00:00:01.7365262

Order ID: 5, Agency ID: 10, UnitPrice of Room: 423, Amount of Room: 61, Amount o
f Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:1
8:05 AM, Time to process the order: 00:00:01.8755342

Order ID: 5, Agency ID: 3, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.0075417

Order ID: 5, Agency ID: 2, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.1515500

Order ID: 5, Agency ID: 7, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.2785572

Order ID: 5, Agency ID: 4, UnitPrice of Room: 423, Amount of Room: 50, Amount of
 Charge: 23272, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.4045644

Order ID: 5, Agency ID: 6, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.5445724

Order ID: 5, Agency ID: 9, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.6665794

Order ID: 5, Agency ID: 1, UnitPrice of Room: 423, Amount of Room: 61, Amount of
 Charge: 28387, Start Time: 2/17/2013 1:18:04 AM, Completed Time: 2/17/2013 1:18
:06 AM, Time to process the order: 00:00:02.7895865
```

```
            No.6 Price-cut Availble 585, 92.0837 Off From Previous Price 677

Order ID: 6, Agency ID: 1, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:11 AM, Time to process the order: 00:00:01.5868609

Order ID: 6, Agency ID: 9, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:11 AM, Time to process the order: 00:00:01.7098679

Order ID: 6, Agency ID: 10, UnitPrice of Room: 585, Amount of Room: 57, Amount o
f Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:1
8:11 AM, Time to process the order: 00:00:01.8418754

Order ID: 6, Agency ID: 8, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.0478872

Order ID: 6, Agency ID: 2, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.1698942

Order ID: 6, Agency ID: 4, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.3279032

Order ID: 6, Agency ID: 6, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.4619109

Order ID: 6, Agency ID: 7, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.5909183

Order ID: 6, Agency ID: 3, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.7549277

Order ID: 6, Agency ID: 5, UnitPrice of Room: 585, Amount of Room: 57, Amount of
 Charge: 36703, Start Time: 2/17/2013 1:18:10 AM, Completed Time: 2/17/2013 1:18
:12 AM, Time to process the order: 00:00:02.8939356
```

```
           No.7 Price-cut Availble 870, 67.4865 Off From Previous Price 938

Order ID: 7, Agency ID: 1, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:17 AM, Time to process the order: 00:00:01.6722089

Order ID: 7, Agency ID: 10, UnitPrice of Room: 870, Amount of Room: 53, Amount o
f Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:1
8:17 AM, Time to process the order: 00:00:01.7992162

Order ID: 7, Agency ID: 6, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:17 AM, Time to process the order: 00:00:01.9202231

Order ID: 7, Agency ID: 8, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.0472304

Order ID: 7, Agency ID: 7, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.1682373

Order ID: 7, Agency ID: 4, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.2902443

Order ID: 7, Agency ID: 2, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.4112512

Order ID: 7, Agency ID: 3, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.5382584

Order ID: 7, Agency ID: 9, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.6612655

Order ID: 7, Agency ID: 5, UnitPrice of Room: 870, Amount of Room: 53, Amount of
 Charge: 50754, Start Time: 2/17/2013 1:18:16 AM, Completed Time: 2/17/2013 1:18
:18 AM, Time to process the order: 00:00:02.7912729
```

```
              No.8 Price-cut Availble 1338, 2.9667 Off From Previous Price 1341

Order ID: 8, Agency ID: 1, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:23 AM, Time to process the order: 00:00:01.5405446

Order ID: 8, Agency ID: 2, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:23 AM, Time to process the order: 00:00:01.6895531

Order ID: 8, Agency ID: 10, UnitPrice of Room: 1338, Amount of Room: 50, Amount
of Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:
18:23 AM, Time to process the order: 00:00:01.8105600

Order ID: 8, Agency ID: 3, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:23 AM, Time to process the order: 00:00:01.9275667

Order ID: 8, Agency ID: 8, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.0585742

Order ID: 8, Agency ID: 4, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.1755809

Order ID: 8, Agency ID: 7, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.2935876

Order ID: 8, Agency ID: 6, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.4155946

Order ID: 8, Agency ID: 9, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.5336014

Order ID: 8, Agency ID: 5, UnitPrice of Room: 1338, Amount of Room: 50, Amount o
f Charge: 73600, Start Time: 2/17/2013 1:18:22 AM, Completed Time: 2/17/2013 1:1
8:24 AM, Time to process the order: 00:00:02.7156118
```

No.9 Price-cut Availble 1668, 389.2484 Off From Previous Price 2057

Order ID: 9, Agency ID: 5, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:29 AM, Time to process the order: 00:00:01.5238868

Order ID: 9, Agency ID: 9, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:29 AM, Time to process the order: 00:00:01.6518941

Order ID: 9, Agency ID: 8, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:29 AM, Time to process the order: 00:00:01.8289042

Order ID: 9, Agency ID: 3, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:29 AM, Time to process the order: 00:00:01.9559115

Order ID: 9, Agency ID: 10, UnitPrice of Room: 1668, Amount of Room: 61, Amount
of Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1
:18:30 AM, Time to process the order: 00:00:02.0779185

Order ID: 9, Agency ID: 7, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:30 AM, Time to process the order: 00:00:02.5129434

Order ID: 9, Agency ID: 6, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:30 AM, Time to process the order: 00:00:02.6329502

Order ID: 9, Agency ID: 4, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:30 AM, Time to process the order: 00:00:02.7549572

Order ID: 9, Agency ID: 2, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:30 AM, Time to process the order: 00:00:02.8839646

Order ID: 9, Agency ID: 1, UnitPrice of Room: 1668, Amount of Room: 61, Amount o
f Charge: 111953, Start Time: 2/17/2013 1:18:28 AM, Completed Time: 2/17/2013 1:
18:31 AM, Time to process the order: 00:00:03.0219725

```
          No.10 Price-cut Availble 1983, 312.1371 Off From Previous Price 2295

Order ID: 10, Agency ID: 1, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:34 AM, Time to process the order: 00:00:00.8371907

Order ID: 10, Agency ID: 2, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:34 AM, Time to process the order: 00:00:00.9551974

Order ID: 10, Agency ID: 8, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.0812047

Order ID: 10, Agency ID: 3, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.2122121

Order ID: 10, Agency ID: 10, UnitPrice of Room: 1983, Amount of Room: 57, Amount
 of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013
1:18:35 AM, Time to process the order: 00:00:01.3772216

Order ID: 10, Agency ID: 4, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.5132294

Order ID: 10, Agency ID: 6, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.6342363

Order ID: 10, Agency ID: 7, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.7532431

Order ID: 10, Agency ID: 9, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:35 AM, Time to process the order: 00:00:01.8752501

Order ID: 10, Agency ID: 5, UnitPrice of Room: 1983, Amount of Room: 57, Amount
of Charge: 124353, Start Time: 2/17/2013 1:18:34 AM, Completed Time: 2/17/2013 1
:18:36 AM, Time to process the order: 00:00:02.0082577
          The Total Time Used by HotelSupplier Thread: 00:01:00.0234332.
```

5. Performance tables

The program was tested with different number of TravelAgency threads.

Number of price-cuts: 10

Number of cores: 2

Processor clock rate:2.50 GHz

N: TravelAgency thread Number	ARTOC: Average Response Time	TTC: Total Time
1	1	30
2	0.95	30
3	0.93	31
4	1.03	35
5	1.04	37
6	1.07	41
7	1.54	38
8	1.7	45
9	1.75	42
10	1.55	44

6. Group project option summary

[1] We use 10 threads to process the orders.

[2] Time Stamp: in the output part, we can see Start Time, Complete Time and time to process the order.

[3] Pricing model: We use a thread to run a class called clock, in which there is a variable called hour. When 0 <= hour < 23, hour is incremented by 1 per second. When hour = 23, it will be reset to 0. The pricing model will fetch an hour value every second and use the following formula to update room price:

   next_room_price = current_room_price * (1 + Math.Sin(hour) / 4.0)

By using Sin function, we can generate fluctuation in price as time goes by; and by divided the Sin function by 4, we can limit the fluctuation to a reasonable level.

[4] Encryption and decryption: consume the svc service http://venus.eas.asu.edu/WSRepository/Services/EncryptionWcf/Service.svc

[5] Performance table: see the table above.