

Instruction Queue

Overview

A queue that handles update instructions to a product. An instruction processing system can be responsible for processing the instructions. The instructions can be received by Receiver that can package the incoming data as an Instruction Message. As the work of the Instruction Processing system can be very complex, it may takes some time to process each instruction and so incoming instruction messages are first placed into the Instruction Queue. Messages are queued in priority order and are also validated.

The instruction queue:

- Supports any number of InstructionMessages
- Prioritises InstructionMessages according to the table below
- Has a method that returns the number of InstructionMessages on it
- Has a method for placing InstructionMessages onto the queue
- Has a method for removing InstructionMessages from the queue
- Has a method for retrieving the InstructionMessage at the front of the queue
- Has a method for determining if the queue is empty
- Throws an InvalidMessageException if an invalid InstructionMessage is placed on it

The InstructionMessage has the following validation:

InstructionType - Integer $0 < n < 100$

ProductCode - Integer $0 < n$

Quantity Integer - $0 < n$

UOM - Integer $0 \leq n < 256$

TimeStamp - Integer $0 < n$

Solution

Environment

Following environment settings are required:

- JDK 1.6
- Maven 2

Run the following command to build:

```
instruction-process> mvn clean install
```

Testing

Following options can be used for acceptance testing:

Cucumber Acceptance Test

The following acceptance test can be run using Maven:

```
instruction-process\src\test\java\bscl\acceptance\AcceptanceTest.java
```

which uses the following feature file:

```
instruction-process\src\test\resources\bscl\acceptance\feature\instruction-queue.feature
```

The command is:

```
instruction-process> mvn -Dtest=bscl.acceptance.AcceptanceTest test
```

Manual Acceptance Test

The command is:

```
instruction-process> mvn jetty:run
```

Then the following manual acceptance test can be run using Maven Jetty plugin:

Home: <http://localhost:8080/instruction-queue>

Number of Instruction Messages in Instruction Queue: <http://localhost:8080/instruction-queue/size>

Add an Instruction Messages to the Instruction Queue: <http://localhost:8080/instruction-queue/add>

Get Instruction Messages from the front of Instruction Queue: <http://localhost:8080/instruction-queue/poll>

Clear all Instruction Messages from the Instruction Queue: <http://localhost:8080/instruction-queue/clear>