
Sonos Programming Test (Readme File)

In this document I am giving a basic overview of the code and how to test the program. The test calls for us to implement 4 main functionalities and one extra credit functionality.

The attached project folder contains 4 Java classes namely QualityAssurance, Puddles, Piddles and Pyddles. QualityAssurance.java is the main class in which the main method is executed in order to run the program. It consists of two methods namely mainFunction() and testFunction(). I have created these two methods in order to simplify testing.

mainFunction() is called in order to test the entire functionality of the system (which includes Piddles, Puddles and Pyddles) while testFunction() is called to test the functionality of one single QA tester which is Piddles in this case. **While executing one of them other method has to be commented.**

When we execute the mainFunction() method the program starts executing. We are making some general assumptions at the start that all the transactions which will take place in the system will have to occur within 24 hours. So, the **earliest time you can enter is 00:00 and the latest you can enter is 23:59**. Time has to be entered in the format **HH:mm**. Another important assumption to be made is that a user cannot enter a time which is earlier than the latest time when tested. For example, if a user bought a hydrant at 10:00, then the next time he wants to buy a hydrant, he can't specify a time earlier than 10:00 for the same tester. The system will simply return false. The time entered is the time when the customer wants to check whether he can buy a fire hydrant and a call to canSellHydrant() is made.

I have created 3 default users/customers. Here is a sample output showing the main functionality of the system.

Please select customer [Enter 1/2/3/4]

1. Ashwin
2. Lannon
3. Seth
4. Exit

1

Hi Ashwin!

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:00

00:00 canSellHydrant: true

Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n] //Burst would allow 10 hydrant tests in 1 hour

n

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:00

00:00 canSellHydrant: true

Buy Hydrant tested by Puddles? [y/n] //Now second QA tester Puddles

y

//tests the item hence it can be

sellHydrant: true //tested at the same time as the first one

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:00

00:00 canSellHydrant by Pyddles: true

Buy Hydrant tested by Pyddles? [y/n] //Now its Pyddles' turn!

y

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:01

00:01 canSellHydrant: false //Piddles tested at 00:00 so 5 min wait

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:05

00:05 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n]

n

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:05

00:05 canSellHydrant: true
Buy Hydrant tested by Puddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:05

00:05 canSellHydrant by Pyddles: true
Buy Hydrant tested by Pyddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:10

00:10 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n]

n

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:10

00:10 canSellHydrant: true
Buy Hydrant tested by Puddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go back to Main Menu

00:10

00:10 canSellHydrant by Pyddles: true
Buy Hydrant tested by Pyddles? [y/n]

y

```
sellHydrant: true
```

```
Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go  
back to Main Menu
```

```
00:15
```

```
00:15 canSellHydrant: true
```

```
Buy Hydrant tested by Piddles? [y/n]
```

```
y
```

```
Burst? [y/n]
```

```
n
```

```
sellHydrant: true
```

```
Enter time in 'HH:mm' between 00:00 to 23:59 or type 'Back' to go  
back to Main Menu
```

```
00:15
```

```
Maximum buy capacity reached for the day! //One customer can purchase  
Please select customer [Enter 1/2/3/4] //only 10 hydrants in 24hours
```

```
1. Ashwin
```

```
2. Lannon
```

```
3. Seth
```

```
4. Exit
```

```
4
```

Thus, the above test shows that each hydrant is tested by a different tester and any single tester has a testing capacity of at most one hydrant tested in any 5 minute period.

Moreover, any single customer cannot make more than 10 transactions in a given day (even after logging in again).

Now, to test 5 hydrants per rolling 1-hour period and burst of 10 hydrants per rolling 1-hour period let's look at one tester individually(in this case Piddles!)

Here is a sample output after executing the testFunction() method.

```
This is a test function to check basic functionality of Piddles
```

```
Enter time in 'HH:mm' or type 'Exit'
```

```
00:00
```

```
00:00 canSellHydrant: true
```

```
Buy Hydrant tested by Piddles? [y/n]
```

```
y
```

Burst? [y/n]

y //Burst has been enabled so Piddles can test up to 10
sellHydrant: true //hydrants in 1 rolling hour

Enter time in 'HH:mm' or type 'Exit'

00:05

00:05 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:10

00:10 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:15

00:15 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:20

00:20 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:25

00:25 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:30

00:30 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]

y

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

00:35

00:35 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
00:40
00:40 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
00:45
00:45 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
00:50
00:50 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
Burst ended! //Burst ended so Piddles goes back to normal functioning
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
00:55
00:55 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
Burst? [y/n]
n
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
01:00
01:00 canSellHydrant: true
Buy Hydrant tested by Piddles? [y/n]
y
Burst? [y/n]
n
sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'
01:05
01:05 canSellHydrant: true

Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n]

n

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

01:10

01:10 canSellHydrant: true

Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n]

n

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

01:15

01:15 canSellHydrant: true

Buy Hydrant tested by Piddles? [y/n]

y

Burst? [y/n]

n

sellHydrant: true

Enter time in 'HH:mm' or type 'Exit'

1:20

1:20 canSellHydrant: false

//returns false because more than 5 hydrants cannot be tested in 1 hour period i.e from 00:55 to 01:55 in this case

Enter time in 'HH:mm' or type 'Exit'

Exit

The burst functionality has been only implemented in Piddles as specified. Apart from that, all 3 testers have same functionalities and limitations.

This document thus gives a brief overview about the execution of the code.
