Test Cases

# Start\_Alarm Test Cases

1. Missing Arguments (id)

**Input:** Start\_Alarm(): 10 Missing Id

**Output:** Bad command

1. Missing Arguments (time)

**Input:** Start\_Alarm(1): Missing Time

**Output:** Bad command

1. Missing Arguments (message)

**Input:** Start\_Alarm(2): 20

**Output:** Bad command

1. Negative id

**Input:** Start\_Alarm(-1): 10 Negative Id

**Output:** Alarm(-1) Inserted by Main Thread(79349120) Into Alarm list at 1678725957: 1678725967 Negative Id

Alarm> New Display Thread 1800384512 Created at 1678725957

Alarm(-1) Assigned to Display Thread(1800384512) at 1678725957: 1678725967 Negative Id

Display Thread Printing Message Of Alarm(-1): Negative Id

Display Thread Printing Message Of Alarm(-1): Negative Id

Alarm(-1) Expired; Display Thread(1800957952) Stopped Printing Alarm Message at 1678725967: 1678725967 Negative Id

1. Positive id

**Input:** Start\_Alarm(2): 20 Should Work

**Output:** New Display Thread 1805103104 Created at 1678726745

Alarm(2) Assigned to Display Thread(1805103104) at 1678726745: 1678726765 Should Work

Display Thread Printing Message Of Alarm(2): Should Work

Display Thread Printing Message Of Alarm(2): Should Work

Display Thread Printing Message Of Alarm(2): Should Work

Display Thread Printing Message Of Alarm(2): Should Work

Alarm(2) Expired; Display Thread(1805676544) Stopped Printing Alarm Message at 1678726765: 1678726765 Should Work

1. Negative time

**Input:** Start\_Alarm(3): -2 Negative Time

**Output:** Alarm(3) Inserted by Main Thread(44139904) Into Alarm list at 1678726852: 1678726850 Negative Time

Alarm(3): Alarm Expired at 1678726852: Alarm removed from alarm list

Alarm> New Display Thread 1836920832 Created at 1678726853

Alarm(3) Assigned to Display Thread(1836920832) at 1678726853: 1678726850 Negative Time

Alarm(3) Expired; Display Thread(1837494272) Stopped Printing Alarm Message at 1678726853: 1678726850 Negative Time

1. Decimal Time

**Input:** Start\_Alarm(4): 10.5 Decimal Time

**Output:** Alarm(4) Inserted by Main Thread(12977536) Into Alarm list at 1678727015: 1678727025 .5 Decimal Time

Alarm> New Display Thread 1866821632 Created at 1678727016

Alarm(4) Assigned to Display Thread(1866821632) at 1678727016: 1678727025 .5 Decimal Time

Display Thread Printing Message Of Alarm(4): .5 Decimal Time

Display Thread Printing Message Of Alarm(4): .5 Decimal Time

Alarm(4) Expired; Display Thread(1867395072) Stopped Printing Alarm Message at 1678727026: 1678727025 .5 Decimal Time

1. Valid time

**Input:** Start\_Alarm(5): 10 Valid Time

**Output:** Alarm(5) Inserted by Main Thread(70403456) Into Alarm list at 1678727066: 1678727076 Valid Time

Alarm> New Display Thread 1808363520 Created at 1678727067

Alarm(5) Assigned to Display Thread(1808363520) at 1678727067: 1678727076 Valid Time

Display Thread Printing Message Of Alarm(5): Valid Time

Display Thread Printing Message Of Alarm(5): Valid Time

Alarm(5) Expired; Display Thread(1808936960) Stopped Printing Alarm Message at 1678727077: 1678727076 Valid Time

1. Valid input [ALL]

**Input:** Start\_Alarm(6): 10 All is well

**Output:** Alarm(6) Inserted by Main Thread(7275904) Into Alarm list at 1678727105: 1678727115 All is well

Alarm> New Display Thread 1872965632 Created at 1678727105

Alarm(6) Assigned to Display Thread(1872965632) at 1678727105: 1678727115 All is well

Display Thread Printing Message Of Alarm(6): All is well

Display Thread Printing Message Of Alarm(6): All is well

Alarm(6) Expired; Display Thread(1873539072) Stopped Printing Alarm Message at 1678727115: 1678727115 All is well

1. >3 input params

**Input:** Start\_Alarm(1): 20 abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyz

**Output:** Alarm(1) Inserted by Main Thread(7210368) Into Alarm list at 1678727204: 1678727224 abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Bad command

Bad command

Alarm> Alarm> Alarm> New Display Thread 1873358848 Created at 1678727205

Alarm(1) Assigned to Display Thread(1873358848) at 1678727205: 1678727224 abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Display Thread Printing Message Of Alarm(1): abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Display Thread Printing Message Of Alarm(1): abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Display Thread Printing Message Of Alarm(1): abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Display Thread Printing Message Of Alarm(1): abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

Alarm(1) Expired; Display Thread(1873932288) Stopped Printing Alarm Message at 1678727225: 1678727224 abcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcdefghijklmnopqrstuvwxyzabcd

1. Multiple alarms

**Input:** Start\_Alarm(7): 50 First In

Start\_Alarm(8): 40 Second In

**Output:** Alarm(7) Inserted by Main Thread(11371904) Into Alarm list at 1678727323: 1678727373 First In

Alarm> New Display Thread 1867886592 Created at 1678727324

Alarm(7) Assigned to Display Thread(1867886592) at 1678727324: 1678727373 First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Alarm(7) Expired; Display Thread(1868460032) Stopped Printing Alarm Message at 1678727374: 1678727373 First In

Alarm(8) Inserted by Main Thread(11371904) Into Alarm list at 1678727374: 1678727414 Second In

Alarm> New Display Thread 1867886592 Created at 1678727374

Alarm(8) Assigned to Display Thread(1867886592) at 1678727374: 1678727414 Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Alarm(8) Expired; Display Thread(1868460032) Stopped Printing Alarm Message at 1678727414: 1678727414 Second In

# Change\_Alarm Test Cases

1. Missing Arguments (id)

**Input:** Start\_Alarm(1): 10 first input

Change\_Alarm: 20 Change to this if possible

**Output:** Alarm(1) Inserted by Main Thread(78464384) Into Alarm list at 1678728815: 1678728825 first input

Alarm> New Display Thread 1801515008 Created at 1678728815

Alarm(1) Assigned to Display Thread(1801515008) at 1678728815: 1678728825 first input

Display Thread Printing Message Of Alarm(1): first input

Display Thread Printing Message Of Alarm(1): first input

Alarm(1) Expired; Display Thread(1802088448) Stopped Printing Alarm Message at 1678728825: 1678728825 first input

Bad command

1. Missing Arguments (time)

**Input:** Start\_Alarm(2): 10 second input

Change\_Alarm(2): Change to this if possible

**Output:** Alarm(2) Inserted by Main Thread(8390016) Into Alarm list at 1678728895: 1678728905 second input

Alarm> New Display Thread 1872916480 Created at 1678728896

Alarm(2) Assigned to Display Thread(1872916480) at 1678728896: 1678728905 second input

Display Thread Printing Message Of Alarm(2): second input

Display Thread Printing Message Of Alarm(2): second input

Alarm(2) Expired; Display Thread(1873489920) Stopped Printing Alarm Message at 1678728906: 1678728905 second input

Bad command

1. Missing Arguments (message)

**Input:** Start\_Alarm(3): 10 third input

Change\_Alarm(3): 20

**Output:** Alarm(3) Inserted by Main Thread(19809664) Into Alarm list at 1678728960: 1678728970 third input

Alarm> New Display Thread 1861120000 Created at 1678728961

Alarm(3) Assigned to Display Thread(1861120000) at 1678728961: 1678728970 third input

Display Thread Printing Message Of Alarm(3): third input

Display Thread Printing Message Of Alarm(3): third input

Alarm(3) Expired; Display Thread(1861693440) Stopped Printing Alarm Message at 1678728971: 1678728970 third input

Bad command

1. Valid

**Input:** Start\_Alarm(3): 10 fourth input

Change\_Alarm(3): 20 Change to this if possible

**Output:** Alarm(3) Inserted by Main Thread(45892992) Into Alarm list at 1678729008: 1678729018 fourth input

Alarm> New Display Thread 1836298240 Created at 1678729008

Alarm(3) Assigned to Display Thread(1836298240) at 1678729008: 1678729018 fourth input

Display Thread Printing Message Of Alarm(3): fourth input

Display Thread Printing Message Of Alarm(3): fourth input

Alarm(3) Expired; Display Thread(1836871680) Stopped Printing Alarm Message at 1678729018: 1678729018 fourth input

Alarm(3) Changed at <1678729044>: 0 Change to this if possible

Alarm(3): Alarm Expired at 1678729044: Alarm removed from alarm list

1. Change alarm that does not exist

**Input:** Change\_Alarm(3): 20 Change if possible

**Output:** Change\_Alarm(3): 20 Change if possible

Alarm(3) Changed at <1678729203>: 0 Change if possible

Alarm(3): Alarm Expired at 1678729203: Alarm removed from alarm list

# Display Test Cases

1. Single alarm input

**Input:** Start\_Alarm(1): 10 Basic Case

**Output:** Alarm(1) Inserted by Main Thread(71157120) Into Alarm list at 1678732034: 1678732044 Basic Case

Alarm> New Display Thread 1808429056 Created at 1678732035

Alarm(1) Assigned to Display Thread(1808429056) at 1678732035: 1678732044 Basic Case

Display Thread Printing Message Of Alarm(1): Basic Case

Display Thread Printing Message Of Alarm(1): Basic Case

Alarm(1) Expired; Display Thread(1809002496) Stopped Printing Alarm Message at 1678732045: 1678732044 Basic Case

1. Multiple alarm input

**Input:** Start\_Alarm(7): 50 First In

Start\_Alarm(8): 40 Second In

Start\_Alarm(9): 30 Seconds In

Start\_Alarm(10): 20 Seconds In

**Output:** Alarm(7) Inserted by Main Thread(77055360) Into Alarm list at 1678754303: 1678754353 First In

Alarm(7): Alarm Expired at 1678754303: Alarm removed from alarm list

Alarm> New Display Thread 1804283904 Created at 1678754304

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Display Thread Printing Message Of Alarm(7): First In

Alarm(7) Expired; Display Thread(1804283904) Stopped Printing Alarm Message at 1678754354: 1678754353 First In

Display Thread Terminated(1804283904) at 1678754354

Alarm(8) Inserted by Main Thread(77055360) Into Alarm list at 1678754354: 1678754394 Second In

Alarm(8): Alarm Expired at 1678754354: Alarm removed from alarm list

Alarm> Alarm(9) Inserted by Main Thread(77055360) Into Alarm list at 1678754354: 1678754384 Seconds In

Alarm(9): Alarm Expired at 1678754354: Alarm removed from alarm list

Alarm> Alarm(10) Inserted by Main Thread(77055360) Into Alarm list at 1678754354: 1678754374 Seconds In

Alarm(10): Alarm Expired at 1678754354: Alarm removed from alarm list

Alarm> New Display Thread 1804283904 Created at 1678754355

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Display Thread Printing Message Of Alarm(8): Second In

Alarm(8) Expired; Display Thread(1804283904) Stopped Printing Alarm Message at 1678754395: 1678754394 Second In

Display Thread Terminated(1804283904) at 1678754395

New Display Thread 1804283904 Created at 1678754395

Alarm(9) Expired; Display Thread(1804283904) Stopped Printing Alarm Message at 1678754395: 1678754384 Seconds In

Display Thread Terminated(1804283904) at 1678754395

New Display Thread 1804283904 Created at 1678754396

Alarm(10) Expired; Display Thread(1804283904) Stopped Printing Alarm Message at 1678754396: 1678754374 Seconds In

Display Thread Terminated(1804283904) at 1678754396