

گزارشکارپروژه‌ی سیستم عامل

آرمینا کمری

The screenshot shows the IntelliJ IDEA interface with a Java project named "OSProject". The "Run" tab is selected, displaying the output of a process scheduling simulation. The console output is as follows:

```
Generated Process: 41 at 1738336768494
Scheduled Process: 35
Replaced Process 26 with Process 36
Replaced Process 15 with Process 38
Replaced Process 34 with Process 39
Replaced Process 21 with Process 40
CPU 1 completed Process: 10
CPU 1 executing Process: 13
Scheduled Process: 37
CPU 3 completed Process: 12
CPU 3 executing Process: 14
CPU 2 completed Process: 11
CPU 2 executing Process: 16
Scheduled Process: 41
Generated Process: 42 at 1738336769499
Generated Process: 43 at 1738336769499
Generated Process: 44 at 1738336769499
Generated Process: 45 at 1738336769499
Generated Process: 46 at 1738336769499
Generated Process: 47 at 1738336769499
Scheduled Process: 42
Replaced Process 41 with Process 43
Replaced Process 37 with Process 44
Replaced Process 44 with Process 45
Replaced Process 43 with Process 46
Replaced Process 46 with Process 47
CPU 2 completed Process: 16
CPU 3 completed Process: 14
CPU 2 executing Process: 17
CPU 3 executing Process: 19
```

The status bar at the bottom indicates "EAND - 2.29%" and the date "1/31/2025".

The screenshot shows the IntelliJ IDEA interface with a Java project named "OSProject". The "Run" tab is selected, displaying the output of a process scheduling simulation. The console output is as follows:

```
Replaced Process 24 with Process 57
Replaced Process 42 with Process 58
Replaced Process 40 with Process 59
CPU 3 completed Process: 19
CPU 3 executing Process: 27
Scheduled Process: 60
CPU 2 completed Process: 23
CPU 3 completed Process: 27
CPU 3 executing Process: 29
CPU 2 executing Process: 29
CPU 1 completed Process: 20
CPU 1 executing Process: 30
Generated Process: 61 at 1738336772515
Generated Process: 62 at 1738336772515
Generated Process: 63 at 1738336772515
Generated Process: 64 at 1738336772515
Generated Process: 65 at 1738336772515
Generated Process: 66 at 1738336772515
Generated Process: 67 at 1738336772515
Generated Process: 68 at 1738336772515
Generated Process: 69 at 1738336772515
Scheduled Process: 61
Scheduled Process: 62
Scheduled Process: 63
Replaced Process 60 with Process 64
Replaced Process 64 with Process 65
Replaced Process 63 with Process 66
CPU 2 completed Process: 28
CPU 2 executing Process: 31
Scheduled Process: 67
```

The status bar at the bottom indicates "EAND - 2.29%" and the date "1/31/2025".

A screenshot of a Java IDE (IntelliJ IDEA) displaying the output of a Java application named OSProject. The application is running and printing logs to the terminal window. The logs show a sequence of events related to process generation and scheduling on three CPUs (CPU 1, CPU 2, CPU 3). Key events include:

- Generated Process: 71 at 1738336773521
- Generated Process: 72 at 1738336773521
- Generated Process: 73 at 1738336773521
- Generated Process: 74 at 1738336773521
- Generated Process: 75 at 1738336773521
- Generated Process: 76 at 1738336773521
- Generated Process: 77 at 1738336773521
- Generated Process: 78 at 1738336773521
- Replaced Process 68 with Process 71
- Replaced Process 55 with Process 73
- Replaced Process 71 with Process 74
- Replaced Process 49 with Process 75
- CPU 3 completed Process: 29
- CPU 2 completed Process: 31
- Process 33 missed start deadline. Deducting score.
- Process 32 missed start deadline. Deducting score.
- Process 33 removed from readyQueue
- CPU 2 executing Process: 35
- Process 32 removed from readyQueue
- CPU 3 executing Process: 36
- CPU 1 completed Process: 30
- CPU 1 executing Process: 38
- Scheduled Process: 69
- Scheduled Process: 70
- Scheduled Process: 72
- Scheduled Process: 76
- Scheduled Process: 77
- Generated Process: 79 at 1738336774536
- Generated Process: 80 at 1738336774536
- Generated Process: 81 at 1738336774536

The terminal window also shows the status bar indicating the file is read-only, the current branch is master, and the commit hash is 619:1. The bottom status bar also shows the date as 1/31/2025.

A second screenshot of the same Java IDE session, showing the continuation of the process scheduling logs. The application has generated and scheduled many more processes, including:

- Replaced Process 69 with Process 86
- Replaced Process 76 with Process 88
- CPU 1 completed Process: 38
- CPU 1 executing Process: 39
- Scheduled Process: 78
- Replaced Process 78 with Process 83
- CPU 3 completed Process: 36
- CPU 3 executing Process: 47
- Scheduled Process: 79
- Replaced Process 79 with Process 81
- Replaced Process 81 with Process 84
- Generated Process: 89 at 1738336775543
- Generated Process: 90 at 1738336775543
- Generated Process: 91 at 1738336775543
- Generated Process: 92 at 1738336775543
- Generated Process: 93 at 1738336775543
- Replaced Process 84 with Process 90
- Replaced Process 83 with Process 91
- CPU 2 completed Process: 35
- CPU 2 executing Process: 48
- Scheduled Process: 87
- Replaced Process 87 with Process 92
- Generated Process: 94 at 1738336776553
- Generated Process: 95 at 1738336776553
- Generated Process: 96 at 1738336776553
- Generated Process: 97 at 1738336776553
- Generated Process: 98 at 1738336776553
- Generated Process: 99 at 1738336776553
- Replaced Process 92 with Process 94
- Replaced Process 94 with Process 95

The terminal window shows the status bar indicating the file is up-to-date (11 minutes ago), the current branch is master, and the commit hash is 619:1. The bottom status bar shows the date as 1/31/2025.

The image shows two side-by-side terminal windows from a Java IDE, likely IntelliJ IDEA, running on a Windows operating system. Both terminals are executing the same Java application, OSProject.java, which simulates an operating system's scheduling algorithm.

Terminal 1 (Left):

```
OS > src > OSProject > main
Generated Process: 96 at 1738336776553
Generated Process: 97 at 1738336776553
Generated Process: 98 at 1738336776553
Generated Process: 99 at 1738336776553
Replaced Process 92 with Process 94
Replaced Process 94 with Process 95
CPU 3 completed Process: 47
CPU 3 executing Process: 50
CPU 1 completed Process: 39
CPU 2 completed Process: 48
Scheduled Process: 89
CPU 2 executing Process: 57
CPU 1 executing Process: 56
Scheduled Process: 93
Scheduled Process: 96
Replaced Process 96 with Process 97
Replaced Process 89 with Process 98
Replaced Process 98 with Process 99
CPU 2 completed Process: 57
CPU 2 executing Process: 58
Generated Process: 100 at 1738336777566
Generated Process: 101 at 1738336777566
Generated Process: 102 at 1738336777566
Generated Process: 103 at 1738336777566
Generated Process: 104 at 1738336777566
Generated Process: 105 at 1738336777566
Generated Process: 106 at 1738336777566
Generated Process: 107 at 1738336777566
Generated Process: 108 at 1738336777566
Generated Process: 109 at 1738336777566
```

Terminal 2 (Right):

```
OS > src > OSProject > main
Generated Process: 108 at 1738336777566
Generated Process: 109 at 1738336777566
Scheduled Process: 100
Replaced Process 93 with Process 101
Replaced Process 101 with Process 102
Replaced Process 99 with Process 103
Replaced Process 103 with Process 108
Replaced Process 80 with Process 109
Generated Process: 110 at 1738336778573
Generated Process: 111 at 1738336778573
Generated Process: 112 at 1738336778573
Generated Process: 113 at 1738336778573
Generated Process: 114 at 1738336778573
Generated Process: 115 at 1738336778573
Generated Process: 116 at 1738336778573
Generated Process: 97 with Process 113
Replaced Process 85 with Process 115
CPU 3 completed Process: 50
Process 59 missed start deadline. Deducting score.
Process 59 removed from readyQueue
CPU 3 executing Process: 61
CPU 1 completed Process: 56
CPU 1 executing Process: 62
CPU 2 completed Process: 58
CPU 2 executing Process: 65
Scheduled Process: 104
Scheduled Process: 105
Scheduled Process: 106
Scheduled Process: 107
Replaced Process 107 with Process 111
```

The image shows two side-by-side terminal windows from a Java IDE, likely IntelliJ IDEA, running on a Windows operating system. Both terminals are executing the same Java application, OSProject.java, which simulates an operating system's scheduling algorithm.

Terminal 1 (Top):

```
Scheduled Process: 107
Replaced Process 107 with Process 111
Replaced Process 111 with Process 116
Generated Process: 117 at 1738336779581
Generated Process: 118 at 1738336779581
Generated Process: 119 at 1738336779581
Generated Process: 120 at 1738336779581
Generated Process: 121 at 1738336779581
Generated Process: 122 at 1738336779581
Generated Process: 123 at 1738336779581
Generated Process: 124 at 1738336779581
Generated Process: 125 at 1738336779581
Generated Process: 126 at 1738336779581
Replaced Process 116 with Process 117
Replaced Process 104 with Process 120
Replaced Process 105 with Process 122
Replaced Process 106 with Process 123
Replaced Process 122 with Process 125
CPU 3 completed Process: 61
CPU 3 executing Process: 66
Scheduled Process: 110
Replaced Process 110 with Process 112
Replaced Process 112 with Process 114
Replaced Process 114 with Process 119
CPU 1 completed Process: 62
CPU 1 executing Process: 73
Scheduled Process: 118
Replaced Process 118 with Process 121
Generated Process: 127 at 1738336780588
CPU 3 completed Process: 66
```

Terminal 2 (Bottom):

```
Replaced Process 196 with Process 202
Replaced Process 202 with Process 284
CPU 3 completed Process: 157
CPU 3 executing Process: 163
Generated Process: 205 at 1738336798661
Generated Process: 206 at 1738336798661
Generated Process: 207 at 1738336798661
Generated Process: 208 at 1738336798661
Generated Process: 209 at 1738336798661
Generated Process: 210 at 1738336798661
Scheduled Process: 199
Replaced Process 199 with Process 205
Replaced Process 205 with Process 207
Replaced Process 206 with Process 208
Replaced Process 204 with Process 209
CPU 2 completed Process: 154
CPU 2 executing Process: 166
Scheduled Process: 203
Replaced Process 203 with Process 206
Replaced Process 206 with Process 210
Generated Process: 211 at 1738336791666
Generated Process: 212 at 1738336791666
Generated Process: 213 at 1738336791666
Generated Process: 214 at 1738336791666
Generated Process: 215 at 1738336791666
Generated Process: 216 at 1738336791666
Generated Process: 217 at 1738336791666
Generated Process: 218 at 1738336791666
Generated Process: 219 at 1738336791666
Replaced Process 210 with Process 212
```

The screenshot shows a Java IDE interface with a dark theme. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Build, Run, Git, Window, and Help. The current file is OS.java. The bottom status bar shows the commit ID 619:1, CRLF, UTF-8, 4 spaces, and the date 1/31/2025.

The main window displays a "Run" pane for the OSProject. The log output shows a sequence of events:

```
CPU 3 executing Process: 148
CPU 2 completed Process: 139
CPU 2 executing Process: 149
Scheduled Process: 173
Scheduled Process: 175
Replaced Process 173 with Process 179
Replaced Process 175 with Process 180
CPU 3 completed Process: 148
CPU 3 executing Process: 150
CPU 1 completed Process: 145
CPU 1 executing Process: 151
Scheduled Process: 181
Generated Process: 182 at 1738336787638
Generated Process: 183 at 1738336787638
Generated Process: 184 at 1738336787638
Generated Process: 185 at 1738336787638
Generated Process: 186 at 1738336787638
Generated Process: 187 at 1738336787638
Generated Process: 188 at 1738336787638
Generated Process: 189 at 1738336787638
Scheduled Process: 182
Replaced Process 181 with Process 183
Replaced Process 183 with Process 184
Replaced Process 180 with Process 186
Generated Process: 190 at 1738336788646
Generated Process: 191 at 1738336788646
Generated Process: 192 at 1738336788646
Generated Process: 193 at 1738336788646
Generated Process: 194 at 1738336788646
Generated Process: 195 at 1738336788646
```

The screenshot shows a Java IDE interface with a dark theme, identical to the one above. The top menu bar includes File, Edit, View, Navigate, Code, Refactor, Build, Run, Git, Window, and Help. The current file is OS.java. The bottom status bar shows the commit ID 619:1, CRLF, UTF-8, 4 spaces, and the date 1/31/2025.

The main window displays a "Run" pane for the OSProject. The log output shows a different sequence of events:

```
Replaced Process 196 with Process 202
Replaced Process 202 with Process 204
CPU 3 completed Process: 157
CPU 3 executing Process: 163
Generated Process: 205 at 1738336798661
Generated Process: 206 at 1738336798661
Generated Process: 207 at 1738336798661
Generated Process: 208 at 1738336798661
Generated Process: 209 at 1738336798661
Generated Process: 210 at 1738336798661
Scheduled Process: 199
Replaced Process 199 with Process 205
Replaced Process 205 with Process 207
Replaced Process 206 with Process 208
Replaced Process 204 with Process 209
CPU 2 completed Process: 154
CPU 2 executing Process: 166
Scheduled Process: 203
Replaced Process 203 with Process 206
Replaced Process 206 with Process 210
Generated Process: 211 at 1738336791666
Generated Process: 212 at 1738336791666
Generated Process: 213 at 1738336791666
Generated Process: 214 at 1738336791666
Generated Process: 215 at 1738336791666
Generated Process: 216 at 1738336791666
Generated Process: 217 at 1738336791666
Generated Process: 218 at 1738336791666
Generated Process: 219 at 1738336791666
Replaced Process 210 with Process 212
```

```
C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14277:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Fadak\Desktop\os\OS\out\production\OS OSProject
```

```
Generated Process: 1 at 1738336764446
```

```
Generated Process: 2 at 1738336764446
```

```
Generated Process: 3 at 1738336764446
```

```
Generated Process: 4 at 1738336764446
```

```
Generated Process: 5 at 1738336764446
```

```
Generated Process: 6 at 1738336764446
```

```
Generated Process: 7 at 1738336764446
```

```
Scheduled Process: 1
```

```
Scheduled Process: 2
```

```
Scheduled Process: 3
```

```
Scheduled Process: 4
```

```
Scheduled Process: 5
```

```
Scheduled Process: 6
```

```
Scheduled Process: 7
```

```
CPU 1 executing Process: 1
```

```
CPU 2 executing Process: 3
```

```
CPU 3 executing Process: 2
```

```
CPU 1 completed Process: 1
```

```
CPU 1 executing Process: 4
```

```
CPU 2 completed Process: 3
```

```
CPU 2 executing Process: 5
```

```
Generated Process: 8 at 1738336765472
```

```
Generated Process: 9 at 1738336765472
```

```
Generated Process: 10 at 1738336765472
```

```
Generated Process: 11 at 1738336765472
```

Generated Process: 12 at 1738336765472

Generated Process: 13 at 1738336765472

Generated Process: 14 at 1738336765472

Generated Process: 15 at 1738336765472

Generated Process: 16 at 1738336765472

Scheduled Process: 8

Scheduled Process: 9

Scheduled Process: 10

Scheduled Process: 11

Scheduled Process: 12

Scheduled Process: 13

Scheduled Process: 14

Scheduled Process: 15

Scheduled Process: 16

CPU 3 completed Process: 2

CPU 2 completed Process: 5

CPU 3 executing Process: 6

CPU 2 executing Process: 7

Generated Process: 17 at 1738336766474

Generated Process: 18 at 1738336766474

Generated Process: 19 at 1738336766474

Generated Process: 20 at 1738336766474

Generated Process: 21 at 1738336766474

Generated Process: 22 at 1738336766474

Generated Process: 23 at 1738336766474

Generated Process: 24 at 1738336766474

Generated Process: 25 at 1738336766474

Generated Process: 26 at 1738336766474

CPU 3 completed Process: 6

CPU 3 executing Process: 8

CPU 1 completed Process: 4

CPU 1 executing Process: 9

Scheduled Process: 17

Scheduled Process: 18

Scheduled Process: 19

Scheduled Process: 20

Scheduled Process: 21

Scheduled Process: 22

Scheduled Process: 23

Scheduled Process: 24

Scheduled Process: 25

Scheduled Process: 26

CPU 1 completed Process: 9

CPU 1 executing Process: 10

CPU 2 completed Process: 7

CPU 2 executing Process: 11

Generated Process: 27 at 1738336767483

Generated Process: 28 at 1738336767483

Generated Process: 29 at 1738336767483

Generated Process: 30 at 1738336767483

Generated Process: 31 at 1738336767483

Generated Process: 32 at 1738336767483

Generated Process: 33 at 1738336767483

Generated Process: 34 at 1738336767483

Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Replaced Process 25 with Process 32
Replaced Process 18 with Process 33
Replaced Process 22 with Process 34
CPU 3 completed Process: 8
CPU 3 executing Process: 12
Generated Process: 35 at 1738336768494
Generated Process: 36 at 1738336768494
Generated Process: 37 at 1738336768494
Generated Process: 38 at 1738336768494
Generated Process: 39 at 1738336768494
Generated Process: 40 at 1738336768494
Generated Process: 41 at 1738336768494
Scheduled Process: 35
Replaced Process 26 with Process 36
Replaced Process 15 with Process 38
Replaced Process 34 with Process 39
Replaced Process 21 with Process 40
CPU 1 completed Process: 10
CPU 1 executing Process: 13
Scheduled Process: 37
CPU 3 completed Process: 12
CPU 3 executing Process: 14

CPU 2 completed Process: 11

CPU 2 executing Process: 16

Scheduled Process: 41

Generated Process: 42 at 1738336769499

Generated Process: 43 at 1738336769499

Generated Process: 44 at 1738336769499

Generated Process: 45 at 1738336769499

Generated Process: 46 at 1738336769499

Generated Process: 47 at 1738336769499

Scheduled Process: 42

Replaced Process 41 with Process 43

Replaced Process 37 with Process 44

Replaced Process 44 with Process 45

Replaced Process 43 with Process 46

Replaced Process 46 with Process 47

CPU 2 completed Process: 16

CPU 3 completed Process: 14

CPU 2 executing Process: 17

CPU 3 executing Process: 19

CPU 1 completed Process: 13

CPU 1 executing Process: 20

Generated Process: 48 at 1738336770502

Generated Process: 49 at 1738336770502

Generated Process: 50 at 1738336770502

Generated Process: 51 at 1738336770502

Generated Process: 52 at 1738336770502

Generated Process: 53 at 1738336770502

Scheduled Process: 48
Scheduled Process: 49
Scheduled Process: 50
CPU 2 completed Process: 17
CPU 2 executing Process: 23
Scheduled Process: 51
Replaced Process 51 with Process 52
Replaced Process 52 with Process 53
Generated Process: 54 at 1738336771507
Generated Process: 55 at 1738336771507
Generated Process: 56 at 1738336771507
Generated Process: 57 at 1738336771507
Generated Process: 58 at 1738336771507
Generated Process: 59 at 1738336771507
Generated Process: 60 at 1738336771507
Replaced Process 53 with Process 54
Replaced Process 54 with Process 55
Replaced Process 45 with Process 56
Replaced Process 24 with Process 57
Replaced Process 42 with Process 58
Replaced Process 40 with Process 59
CPU 3 completed Process: 19
CPU 3 executing Process: 27
Scheduled Process: 60
CPU 2 completed Process: 23
CPU 3 completed Process: 27
CPU 3 executing Process: 29

CPU 2 executing Process: 28

CPU 1 completed Process: 20

CPU 1 executing Process: 30

Generated Process: 61 at 1738336772515

Generated Process: 62 at 1738336772515

Generated Process: 63 at 1738336772515

Generated Process: 64 at 1738336772515

Generated Process: 65 at 1738336772515

Generated Process: 66 at 1738336772515

Generated Process: 67 at 1738336772515

Generated Process: 68 at 1738336772515

Generated Process: 69 at 1738336772515

Scheduled Process: 61

Scheduled Process: 62

Scheduled Process: 63

Replaced Process 60 with Process 64

Replaced Process 64 with Process 65

Replaced Process 63 with Process 66

CPU 2 completed Process: 28

CPU 2 executing Process: 31

Scheduled Process: 67

Replaced Process 67 with Process 68

Generated Process: 70 at 1738336773521

Generated Process: 71 at 1738336773521

Generated Process: 72 at 1738336773521

Generated Process: 73 at 1738336773521

Generated Process: 74 at 1738336773521

Generated Process: 75 at 1738336773521
Generated Process: 76 at 1738336773521
Generated Process: 77 at 1738336773521
Generated Process: 78 at 1738336773521
Replaced Process 68 with Process 71
Replaced Process 55 with Process 73
Replaced Process 71 with Process 74
Replaced Process 49 with Process 75
CPU 3 completed Process: 29
CPU 2 completed Process: 31
.Process 33 missed start deadline. Deducting score
.Process 32 missed start deadline. Deducting score
Process 33 removed from readyQueue
CPU 2 executing Process: 35
Process 32 removed from readyQueue
CPU 3 executing Process: 36
CPU 1 completed Process: 30
CPU 1 executing Process: 38
Scheduled Process: 69
Scheduled Process: 70
Scheduled Process: 72
Scheduled Process: 76
Scheduled Process: 77
Generated Process: 79 at 1738336774536
Generated Process: 80 at 1738336774536
Generated Process: 81 at 1738336774536
Generated Process: 82 at 1738336774536

Generated Process: 83 at 1738336774536

Generated Process: 84 at 1738336774536

Generated Process: 85 at 1738336774536

Generated Process: 86 at 1738336774536

Generated Process: 87 at 1738336774536

Generated Process: 88 at 1738336774536

Replaced Process 70 with Process 80

Replaced Process 77 with Process 82

Replaced Process 72 with Process 85

Replaced Process 69 with Process 86

Replaced Process 76 with Process 88

CPU 1 completed Process: 38

CPU 1 executing Process: 39

Scheduled Process: 78

Replaced Process 78 with Process 83

CPU 3 completed Process: 36

CPU 3 executing Process: 47

Scheduled Process: 79

Replaced Process 79 with Process 81

Replaced Process 81 with Process 84

Generated Process: 89 at 1738336775543

Generated Process: 90 at 1738336775543

Generated Process: 91 at 1738336775543

Generated Process: 92 at 1738336775543

Generated Process: 93 at 1738336775543

Replaced Process 84 with Process 90

Replaced Process 83 with Process 91

CPU 2 completed Process: 35

CPU 2 executing Process: 48

Scheduled Process: 87

Replaced Process 87 with Process 92

Generated Process: 94 at 1738336776553

Generated Process: 95 at 1738336776553

Generated Process: 96 at 1738336776553

Generated Process: 97 at 1738336776553

Generated Process: 98 at 1738336776553

Generated Process: 99 at 1738336776553

Replaced Process 92 with Process 94

Replaced Process 94 with Process 95

CPU 3 completed Process: 47

CPU 3 executing Process: 50

CPU 1 completed Process: 39

CPU 2 completed Process: 48

Scheduled Process: 89

CPU 2 executing Process: 57

CPU 1 executing Process: 56

Scheduled Process: 93

Scheduled Process: 96

Replaced Process 96 with Process 97

Replaced Process 89 with Process 98

Replaced Process 98 with Process 99

CPU 2 completed Process: 57

CPU 2 executing Process: 58

Generated Process: 100 at 1738336777566

Generated Process: 101 at 1738336777566

Generated Process: 102 at 1738336777566

Generated Process: 103 at 1738336777566

Generated Process: 104 at 1738336777566

Generated Process: 105 at 1738336777566

Generated Process: 106 at 1738336777566

Generated Process: 107 at 1738336777566

Generated Process: 108 at 1738336777566

Generated Process: 109 at 1738336777566

Scheduled Process: 100

Replaced Process 93 with Process 101

Replaced Process 101 with Process 102

Replaced Process 99 with Process 103

Replaced Process 103 with Process 108

Replaced Process 80 with Process 109

Generated Process: 110 at 1738336778573

Generated Process: 111 at 1738336778573

Generated Process: 112 at 1738336778573

Generated Process: 113 at 1738336778573

Generated Process: 114 at 1738336778573

Generated Process: 115 at 1738336778573

Generated Process: 116 at 1738336778573

Replaced Process 97 with Process 113

Replaced Process 85 with Process 115

CPU 3 completed Process: 50

.Process 59 missed start deadline. Deducting score

Process 59 removed from readyQueue

CPU 3 executing Process: 61

CPU 1 completed Process: 56

CPU 1 executing Process: 62

CPU 2 completed Process: 58

CPU 2 executing Process: 65

Scheduled Process: 104

Scheduled Process: 105

Scheduled Process: 106

Scheduled Process: 107

Replaced Process 107 with Process 111

Replaced Process 111 with Process 116

Generated Process: 117 at 1738336779581

Generated Process: 118 at 1738336779581

Generated Process: 119 at 1738336779581

Generated Process: 120 at 1738336779581

Generated Process: 121 at 1738336779581

Generated Process: 122 at 1738336779581

Generated Process: 123 at 1738336779581

Generated Process: 124 at 1738336779581

Generated Process: 125 at 1738336779581

Generated Process: 126 at 1738336779581

Replaced Process 116 with Process 117

Replaced Process 104 with Process 120

Replaced Process 105 with Process 122

Replaced Process 106 with Process 123

Replaced Process 122 with Process 125

CPU 3 completed Process: 61

CPU 3 executing Process: 66

Scheduled Process: 110

Replaced Process 110 with Process 112

Replaced Process 112 with Process 114

Replaced Process 114 with Process 119

CPU 1 completed Process: 62

CPU 1 executing Process: 73

Scheduled Process: 118

Replaced Process 118 with Process 121

Generated Process: 127 at 1738336780588

CPU 3 completed Process: 66

Generated Process: 128 at 1738336780588

Generated Process: 129 at 1738336780588

Generated Process: 130 at 1738336780588

Generated Process: 131 at 1738336780588

CPU 3 executing Process: 74

Generated Process: 132 at 1738336780588

Generated Process: 133 at 1738336780588

Generated Process: 134 at 1738336780588

Scheduled Process: 124

Replaced Process 124 with Process 127

Replaced Process 121 with Process 130

Replaced Process 119 with Process 133

CPU 1 completed Process: 73

CPU 1 executing Process: 75

CPU 2 completed Process: 65

CPU 2 executing Process: 82

Scheduled Process: 126

Scheduled Process: 128

Replaced Process 128 with Process 131

Replaced Process 131 with Process 134

CPU 3 completed Process: 74

CPU 3 executing Process: 86

CPU 1 completed Process: 75

CPU 1 executing Process: 88

CPU 2 completed Process: 82

CPU 2 executing Process: 90

Scheduled Process: 129

Scheduled Process: 132

Generated Process: 135 at 1738336781594

Generated Process: 136 at 1738336781594

Generated Process: 137 at 1738336781594

Generated Process: 138 at 1738336781594

Generated Process: 139 at 1738336781594

Generated Process: 140 at 1738336781594

Generated Process: 141 at 1738336781594

Generated Process: 142 at 1738336781594

Generated Process: 143 at 1738336781594

Generated Process: 144 at 1738336781594

Scheduled Process: 135

Replaced Process 132 with Process 136

Replaced Process 129 with Process 137

Replaced Process 136 with Process 138

Replaced Process 126 with Process 139

Replaced Process 134 with Process 142

Replaced Process 137 with Process 143

CPU 1 completed Process: 88

CPU 1 executing Process: 91

Scheduled Process: 140

CPU 3 completed Process: 86

CPU 3 executing Process: 95

Scheduled Process: 141

Replaced Process 141 with Process 144

CPU 3 completed Process: 95

CPU 3 executing Process: 100

Generated Process: 145 at 1738336782598

Generated Process: 146 at 1738336782598

Generated Process: 147 at 1738336782598

Generated Process: 148 at 1738336782598

Generated Process: 149 at 1738336782598

Generated Process: 150 at 1738336782598

Generated Process: 151 at 1738336782598

Generated Process: 152 at 1738336782598

Generated Process: 153 at 1738336782598

Scheduled Process: 145

CPU 2 completed Process: 90

Replaced Process 144 with Process 146

CPU 2 executing Process: 102

Scheduled Process: 147

Replaced Process 147 with Process 148

Replaced Process 140 with Process 149

Replaced Process 143 with Process 150
Replaced Process 135 with Process 151
Replaced Process 146 with Process 153
CPU 3 completed Process: 100
CPU 3 executing Process: 108
CPU 1 completed Process: 91
.Process 109 missed start deadline. Deducting score
Process 109 removed from readyQueue
CPU 1 executing Process: 113
Scheduled Process: 152
CPU 1 completed Process: 113
CPU 1 executing Process: 115
Generated Process: 154 at 1738336783602
Generated Process: 155 at 1738336783602
Generated Process: 156 at 1738336783602
Generated Process: 157 at 1738336783602
Generated Process: 158 at 1738336783602
Generated Process: 159 at 1738336783602
Generated Process: 160 at 1738336783602
Generated Process: 161 at 1738336783602
Generated Process: 162 at 1738336783602
Generated Process: 163 at 1738336783602
Scheduled Process: 154
Scheduled Process: 155
Scheduled Process: 156
Replaced Process 152 with Process 157
Replaced Process 138 with Process 158

Replaced Process 133 with Process 160

Replaced Process 142 with Process 163

CPU 1 completed Process: 115

CPU 1 executing Process: 117

Scheduled Process: 159

Replaced Process 159 with Process 161

Replaced Process 161 with Process 162

CPU 3 completed Process: 108

CPU 3 executing Process: 120

CPU 2 completed Process: 102

CPU 2 executing Process: 123

Generated Process: 164 at 1738336784616

Generated Process: 165 at 1738336784616

Generated Process: 166 at 1738336784616

Generated Process: 167 at 1738336784616

Generated Process: 168 at 1738336784616

CPU 1 completed Process: 117

CPU 1 executing Process: 125

Scheduled Process: 164

Scheduled Process: 165

Scheduled Process: 166

Replaced Process 165 with Process 167

Replaced Process 164 with Process 168

CPU 2 completed Process: 123

CPU 2 executing Process: 127

CPU 3 completed Process: 120

CPU 3 executing Process: 130

CPU 2 completed Process: 127

CPU 2 executing Process: 139

Generated Process: 169 at 1738336785622

Generated Process: 170 at 1738336785622

Generated Process: 171 at 1738336785622

Generated Process: 172 at 1738336785622

Generated Process: 173 at 1738336785622

Generated Process: 174 at 1738336785622

Scheduled Process: 169

Scheduled Process: 170

Scheduled Process: 171

Replaced Process 162 with Process 174

Generated Process: 175 at 1738336786628

Generated Process: 176 at 1738336786628

Generated Process: 177 at 1738336786628

Generated Process: 178 at 1738336786628

Generated Process: 179 at 1738336786628

Generated Process: 180 at 1738336786628

Generated Process: 181 at 1738336786628

CPU 1 completed Process: 125

CPU 1 executing Process: 145

Scheduled Process: 172

Replaced Process 172 with Process 176

Replaced Process 158 with Process 177

Replaced Process 153 with Process 178

CPU 3 completed Process: 130

CPU 3 executing Process: 148

CPU 2 completed Process: 139

CPU 2 executing Process: 149

Scheduled Process: 173

Scheduled Process: 175

Replaced Process 173 with Process 179

Replaced Process 175 with Process 180

CPU 3 completed Process: 148

CPU 3 executing Process: 150

CPU 1 completed Process: 145

CPU 1 executing Process: 151

Scheduled Process: 181

Generated Process: 182 at 1738336787638

Generated Process: 183 at 1738336787638

Generated Process: 184 at 1738336787638

Generated Process: 185 at 1738336787638

Generated Process: 186 at 1738336787638

Generated Process: 187 at 1738336787638

Generated Process: 188 at 1738336787638

Generated Process: 189 at 1738336787638

Scheduled Process: 182

Replaced Process 181 with Process 183

Replaced Process 183 with Process 184

Replaced Process 180 with Process 186

Generated Process: 190 at 1738336788646

Generated Process: 191 at 1738336788646

Generated Process: 192 at 1738336788646

Generated Process: 193 at 1738336788646

Generated Process: 194 at 1738336788646

Generated Process: 195 at 1738336788646

Replaced Process 182 with Process 191

Replaced Process 184 with Process 192

Replaced Process 179 with Process 193

Replaced Process 170 with Process 194

CPU 2 completed Process: 149

CPU 2 executing Process: 154

CPU 1 completed Process: 151

CPU 1 executing Process: 155

Scheduled Process: 185

Scheduled Process: 187

Replaced Process 185 with Process 188

Replaced Process 187 with Process 190

Replaced Process 188 with Process 195

CPU 3 completed Process: 150

CPU 3 executing Process: 156

Scheduled Process: 189

Generated Process: 196 at 1738336789652

Generated Process: 197 at 1738336789652

Generated Process: 198 at 1738336789652

Generated Process: 199 at 1738336789652

Generated Process: 200 at 1738336789652

Generated Process: 201 at 1738336789652

Generated Process: 202 at 1738336789652

Generated Process: 203 at 1738336789652

Generated Process: 204 at 1738336789652

Replaced Process 189 with Process 197

Replaced Process 195 with Process 198

Replaced Process 198 with Process 201

CPU 3 completed Process: 156

CPU 3 executing Process: 157

Scheduled Process: 196

CPU 1 completed Process: 155

CPU 1 executing Process: 160

Scheduled Process: 200

Replaced Process 196 with Process 202

Replaced Process 202 with Process 204

CPU 3 completed Process: 157

CPU 3 executing Process: 163

Generated Process: 205 at 1738336790661

Generated Process: 206 at 1738336790661

Generated Process: 207 at 1738336790661

Generated Process: 208 at 1738336790661

Generated Process: 209 at 1738336790661

Generated Process: 210 at 1738336790661

Scheduled Process: 199

Replaced Process 199 with Process 205

Replaced Process 205 with Process 207

Replaced Process 200 with Process 208

Replaced Process 204 with Process 209

CPU 2 completed Process: 154

CPU 2 executing Process: 166

Scheduled Process: 203

Replaced Process 203 with Process 206

Replaced Process 206 with Process 210

Generated Process: 211 at 1738336791666

Generated Process: 212 at 1738336791666

Generated Process: 213 at 1738336791666

Generated Process: 214 at 1738336791666

Generated Process: 215 at 1738336791666

Generated Process: 216 at 1738336791666

Generated Process: 217 at 1738336791666

Generated Process: 218 at 1738336791666

Generated Process: 219 at 1738336791666

Replaced Process 210 with Process 212

Replaced Process 212 with Process 213

Replaced Process 201 with Process 214

Replaced Process 190 with Process 215

Replaced Process 207 with Process 216

Replaced Process 197 with Process 218

CPU 1 completed Process: 160

.Process 167 missed start deadline. Deducting score

Process 167 removed from readyQueue

.Process 168 missed start deadline. Deducting score

Process 168 removed from readyQueue

.Process 169 missed start deadline. Deducting score

Process 169 removed from readyQueue

CPU 1 executing Process: 171

Scheduled Process: 211

Scheduled Process: 217

Scheduled Process: 219

CPU 3 completed Process: 163

CPU 3 executing Process: 174

Generated Process: 220 at 1738336792670

Generated Process: 221 at 1738336792670

Generated Process: 222 at 1738336792670

Generated Process: 223 at 1738336792670

Generated Process: 224 at 1738336792670

Generated Process: 225 at 1738336792670

CPU 2 completed Process: 166

CPU 2 executing Process: 176

Scheduled Process: 220

Scheduled Process: 221

Scheduled Process: 222

Replaced Process 211 with Process 223

Replaced Process 223 with Process 225

CPU 1 completed Process: 171

.Process 177 missed start deadline. Deducting score

Process 177 removed from readyQueue

CPU 1 executing Process: 178

Scheduled Process: 224

.Simulation ended

Final System Score: 4901

Process finished with exit code 0

اجرای دیگر زمان شبیه سازی را 10 تا کردم کمتر باشد

The screenshots show the output of a Java application running in IntelliJ IDEA. The application simulates a process scheduler across three CPUs.

Top Screenshot (Processes 1-11):

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14426:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2"
Generated Process: 1 at 1738338042540
Generated Process: 2 at 1738338042540
Generated Process: 3 at 1738338042540
Generated Process: 4 at 1738338042540
Generated Process: 5 at 1738338042540
Generated Process: 6 at 1738338042540
Generated Process: 7 at 1738338042540
Generated Process: 8 at 1738338042540
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
Scheduled Process: 6
Scheduled Process: 7
Scheduled Process: 8
CPU 2 executing Process: 1
CPU 1 executing Process: 2
CPU 3 executing Process: 3
CPU 3 completed Process: 3
CPU 3 executing Process: 4
Generated Process: 9 at 1738338043553
Generated Process: 10 at 1738338043553
Generated Process: 11 at 1738338043553
Generated Process: 12 at 1738338043553
Generated Process: 13 at 1738338043553
Scheduled Process: 9
Scheduled Process: 10
Scheduled Process: 11
```

Bottom Screenshot (Processes 2-22):

```
CPU 1 completed Process: 2
CPU 1 executing Process: 5
CPU 2 completed Process: 1
CPU 2 executing Process: 6
CPU 3 completed Process: 4
CPU 3 executing Process: 7
CPU 1 completed Process: 5
CPU 2 completed Process: 6
CPU 1 executing Process: 8
CPU 2 executing Process: 9
Generated Process: 14 at 1738338044558
Generated Process: 15 at 1738338044558
Generated Process: 16 at 1738338044558
Generated Process: 17 at 1738338044558
Generated Process: 18 at 1738338044558
Scheduled Process: 14
Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
CPU 3 completed Process: 7
CPU 3 executing Process: 10
CPU 2 completed Process: 9
CPU 2 executing Process: 11
CPU 1 completed Process: 8
CPU 1 executing Process: 12
Generated Process: 19 at 1738338045573
Generated Process: 20 at 1738338045573
Generated Process: 21 at 1738338045573
Generated Process: 22 at 1738338045573
```

The screenshots show the output of a Java application running in an IDE. The application simulates a process scheduler across three CPUs.

Top Screenshot (Run 1):

- Generated Process: 21 at 1738338045573
- Generated Process: 22 at 1738338045573
- Generated Process: 23 at 1738338045573
- Generated Process: 24 at 1738338045573
- Generated Process: 25 at 1738338045573
- Scheduled Process: 19
- Scheduled Process: 20
- Scheduled Process: 21
- Scheduled Process: 22
- Scheduled Process: 23
- Scheduled Process: 24
- Scheduled Process: 25
- CPU 3 completed Process: 10
- CPU 3 executing Process: 13
- Generated Process: 26 at 1738338046578
- Generated Process: 27 at 1738338046578
- Generated Process: 28 at 1738338046578
- Generated Process: 29 at 1738338046578
- Generated Process: 30 at 1738338046578
- Generated Process: 31 at 1738338046578
- Generated Process: 32 at 1738338046578
- Generated Process: 33 at 1738338046578
- Generated Process: 34 at 1738338046578
- Generated Process: 35 at 1738338046578
- Scheduled Process: 26
- Scheduled Process: 27
- Scheduled Process: 28
- Scheduled Process: 29
- Scheduled Process: 30
- Scheduled Process: 31

Bottom Screenshot (Run 2):

- Scheduled Process: 30
- Scheduled Process: 31
- Scheduled Process: 32
- Scheduled Process: 33
- Replaced Process 32 with Process 34
- Replaced Process 19 with Process 35
- CPU 2 completed Process: 11
- CPU 2 executing Process: 14
- CPU 1 completed Process: 12
- CPU 1 executing Process: 15
- CPU 2 completed Process: 14
- CPU 2 executing Process: 16
- Generated Process: 36 at 1738338047593
- Generated Process: 37 at 1738338047593
- Generated Process: 38 at 1738338047593
- Generated Process: 39 at 1738338047593
- Generated Process: 40 at 1738338047593
- Generated Process: 41 at 1738338047593
- Generated Process: 42 at 1738338047593
- Generated Process: 43 at 1738338047593
- Generated Process: 44 at 1738338047593
- Generated Process: 45 at 1738338047593
- Scheduled Process: 36
- Scheduled Process: 37
- Scheduled Process: 38
- Replaced Process 35 with Process 39
- Replaced Process 23 with Process 40
- Replaced Process 31 with Process 41
- Replaced Process 22 with Process 42
- Replaced Process 25 with Process 43

```

OS / src > OSProject > main
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
Project Run OSProject
Run: OSProject
CPU 3 executing Process: 18
Scheduled Process: 45
Generated Process: 46 at 1738338048598
Generated Process: 47 at 1738338048598
Generated Process: 48 at 1738338048598
Generated Process: 49 at 1738338048598
Generated Process: 50 at 1738338048598
Generated Process: 51 at 1738338048598
Generated Process: 52 at 1738338048598
Generated Process: 53 at 1738338048598
Generated Process: 54 at 1738338048598
Replaced Process 45 with Process 47
Replaced Process 26 with Process 49
Replaced Process 38 with Process 52
CPU 2 completed Process: 16
CPU 2 executing Process: 20
Scheduled Process: 46
Replaced Process 46 with Process 48
Replaced Process 48 with Process 50
Replaced Process 50 with Process 53
CPU 1 completed Process: 15
CPU 1 executing Process: 21
CPU 3 completed Process: 18
CPU 3 executing Process: 24
Scheduled Process: 51
Scheduled Process: 54
Generated Process: 55 at 1738338049608
Generated Process: 56 at 1738338049608
Generated Process: 57 at 1738338049608
Generated Process: 58 at 1738338049608
Build completed successfully in 2 sec, 310 ms (a minute ago)
OS / src > OSProject > main
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
Project Run OSProject
Run: OSProject
Replaced Process 51 with Process 55
Replaced Process 55 with Process 56
Replaced Process 54 with Process 59
Replaced Process 59 with Process 60
CPU 2 completed Process: 20
CPU 2 executing Process: 27
Scheduled Process: 57
Generated Process: 61 at 1738338050612
Generated Process: 62 at 1738338050612
Generated Process: 63 at 1738338050612
Generated Process: 64 at 1738338050612
Generated Process: 65 at 1738338050612
Replaced Process 57 with Process 61
Replaced Process 53 with Process 62
Replaced Process 60 with Process 63
Replaced Process 43 with Process 64
Replaced Process 64 with Process 65
CPU 1 completed Process: 21
CPU 1 executing Process: 28
Scheduled Process: 58
CPU 3 completed Process: 24
CPU 3 executing Process: 29
CPU 1 completed Process: 28
CPU 1 executing Process: 30
CPU 3 completed Process: 29
CPU 3 executing Process: 33
Simulation ended.
Final System Score: 1356
Process finished with exit code 0
Build completed successfully in 2 sec, 310 ms (a minute ago)

```

C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14426:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Fadak\Desktop\os\OS\out\production\OS OSProject

Generated Process: 1 at 1738338042540

Generated Process: 2 at 1738338042540

Generated Process: 3 at 1738338042540

Generated Process: 4 at 1738338042540

Generated Process: 5 at 1738338042540

Generated Process: 6 at 1738338042540

Generated Process: 7 at 1738338042540

Generated Process: 8 at 1738338042540

Scheduled Process: 1

Scheduled Process: 2

Scheduled Process: 3

Scheduled Process: 4

Scheduled Process: 5

Scheduled Process: 6

Scheduled Process: 7

Scheduled Process: 8

CPU 2 executing Process: 1

CPU 1 executing Process: 2

CPU 3 executing Process: 3

CPU 3 completed Process: 3

CPU 3 executing Process: 4

Generated Process: 9 at 1738338043553

Generated Process: 10 at 1738338043553

Generated Process: 11 at 1738338043553

Generated Process: 12 at 1738338043553

Generated Process: 13 at 1738338043553

Scheduled Process: 9

Scheduled Process: 10

Scheduled Process: 11

Scheduled Process: 12
Scheduled Process: 13
CPU 1 completed Process: 2
CPU 1 executing Process: 5
CPU 2 completed Process: 1
CPU 2 executing Process: 6
CPU 3 completed Process: 4
CPU 3 executing Process: 7
CPU 1 completed Process: 5
CPU 2 completed Process: 6
CPU 1 executing Process: 8
CPU 2 executing Process: 9
Generated Process: 14 at 1738338044558
Generated Process: 15 at 1738338044558
Generated Process: 16 at 1738338044558
Generated Process: 17 at 1738338044558
Generated Process: 18 at 1738338044558
Scheduled Process: 14
Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
CPU 3 completed Process: 7
CPU 3 executing Process: 10
CPU 2 completed Process: 9
CPU 2 executing Process: 11
CPU 1 completed Process: 8

CPU 1 executing Process: 12

Generated Process: 19 at 1738338045573

Generated Process: 20 at 1738338045573

Generated Process: 21 at 1738338045573

Generated Process: 22 at 1738338045573

Generated Process: 23 at 1738338045573

Generated Process: 24 at 1738338045573

Generated Process: 25 at 1738338045573

Scheduled Process: 19

Scheduled Process: 20

Scheduled Process: 21

Scheduled Process: 22

Scheduled Process: 23

Scheduled Process: 24

Scheduled Process: 25

CPU 3 completed Process: 10

CPU 3 executing Process: 13

Generated Process: 26 at 1738338046578

Generated Process: 27 at 1738338046578

Generated Process: 28 at 1738338046578

Generated Process: 29 at 1738338046578

Generated Process: 30 at 1738338046578

Generated Process: 31 at 1738338046578

Generated Process: 32 at 1738338046578

Generated Process: 33 at 1738338046578

Generated Process: 34 at 1738338046578

Generated Process: 35 at 1738338046578

Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Scheduled Process: 32
Scheduled Process: 33
Replaced Process 32 with Process 34
Replaced Process 19 with Process 35
CPU 2 completed Process: 11
CPU 2 executing Process: 14
CPU 1 completed Process: 12
CPU 1 executing Process: 15
CPU 2 completed Process: 14
CPU 2 executing Process: 16
Generated Process: 36 at 1738338047593
Generated Process: 37 at 1738338047593
Generated Process: 38 at 1738338047593
Generated Process: 39 at 1738338047593
Generated Process: 40 at 1738338047593
Generated Process: 41 at 1738338047593
Generated Process: 42 at 1738338047593
Generated Process: 43 at 1738338047593
Generated Process: 44 at 1738338047593
Generated Process: 45 at 1738338047593
Scheduled Process: 36

Scheduled Process: 37

Scheduled Process: 38

Replaced Process 35 with Process 39

Replaced Process 23 with Process 40

Replaced Process 31 with Process 41

Replaced Process 22 with Process 42

Replaced Process 25 with Process 43

Replaced Process 17 with Process 44

CPU 3 completed Process: 13

CPU 3 executing Process: 18

Scheduled Process: 45

Generated Process: 46 at 1738338048598

Generated Process: 47 at 1738338048598

Generated Process: 48 at 1738338048598

Generated Process: 49 at 1738338048598

Generated Process: 50 at 1738338048598

Generated Process: 51 at 1738338048598

Generated Process: 52 at 1738338048598

Generated Process: 53 at 1738338048598

Generated Process: 54 at 1738338048598

Replaced Process 45 with Process 47

Replaced Process 26 with Process 49

Replaced Process 38 with Process 52

CPU 2 completed Process: 16

CPU 2 executing Process: 20

Scheduled Process: 46

Replaced Process 46 with Process 48

Replaced Process 48 with Process 50

Replaced Process 50 with Process 53

CPU 1 completed Process: 15

CPU 1 executing Process: 21

CPU 3 completed Process: 18

CPU 3 executing Process: 24

Scheduled Process: 51

Scheduled Process: 54

Generated Process: 55 at 1738338049608

Generated Process: 56 at 1738338049608

Generated Process: 57 at 1738338049608

Generated Process: 58 at 1738338049608

Generated Process: 59 at 1738338049608

Generated Process: 60 at 1738338049608

Replaced Process 51 with Process 55

Replaced Process 55 with Process 56

Replaced Process 54 with Process 59

Replaced Process 59 with Process 60

CPU 2 completed Process: 20

CPU 2 executing Process: 27

Scheduled Process: 57

Generated Process: 61 at 1738338050612

Generated Process: 62 at 1738338050612

Generated Process: 63 at 1738338050612

Generated Process: 64 at 1738338050612

Generated Process: 65 at 1738338050612

Replaced Process 57 with Process 61

Replaced Process 53 with Process 62
Replaced Process 60 with Process 63
Replaced Process 43 with Process 64
Replaced Process 64 with Process 65
CPU 1 completed Process: 21
CPU 1 executing Process: 28
Scheduled Process: 58
CPU 3 completed Process: 24
CPU 3 executing Process: 29
CPU 1 completed Process: 28
CPU 1 executing Process: 30
CPU 3 completed Process: 29
CPU 3 executing Process: 33
.Simulation ended
Final System Score: 1356

Process finished with exit code 0

اجرای سوم

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14439:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2"
Generated Process: 1 at 1738338190169
Generated Process: 2 at 1738338190169
Generated Process: 3 at 1738338190169
Generated Process: 4 at 1738338190169
Generated Process: 5 at 1738338190169
Generated Process: 6 at 1738338190169
Generated Process: 7 at 1738338190169
Generated Process: 8 at 1738338190169
Generated Process: 9 at 1738338190169
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
Scheduled Process: 6
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
CPU 3 executing Process: 1
CPU 1 executing Process: 3
CPU 2 executing Process: 2
CPU 1 completed Process: 3
CPU 1 executing Process: 5
CPU 2 completed Process: 2
CPU 2 executing Process: 6
CPU 1 completed Process: 5
CPU 1 executing Process: 7
Generated Process: 10 at 1738338191188
Generated Process: 11 at 1738338191188
```

```
Generated Process: 14 at 1738338191188
Generated Process: 15 at 1738338191188
Generated Process: 16 at 1738338191188
Generated Process: 17 at 1738338191188
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
Scheduled Process: 25
Scheduled Process: 26
Scheduled Process: 27
CPU 3 completed Process: 1
CPU 3 executing Process: 8
CPU 3 completed Process: 8
CPU 3 executing Process: 9
Generated Process: 18 at 1738338192198
Generated Process: 19 at 1738338192198
Generated Process: 20 at 1738338192198
Generated Process: 21 at 1738338192198
Generated Process: 22 at 1738338192198
Generated Process: 23 at 1738338192198
Generated Process: 24 at 1738338192198
Generated Process: 25 at 1738338192198
Generated Process: 26 at 1738338192198
Generated Process: 27 at 1738338192198
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
```

A screenshot of a Java IDE (IntelliJ IDEA) displaying the output of a Java application named OSProject. The application is running and printing log messages to the console. The messages show various processes being scheduled and completed on three CPUs. The log includes:

```
Scheduled Process: 24
Scheduled Process: 25
Scheduled Process: 26
Scheduled Process: 27
CPU 2 completed Process: 6
CPU 2 executing Process: 10
CPU 1 completed Process: 7
CPU 1 executing Process: 11
CPU 3 completed Process: 9
CPU 3 executing Process: 12
Generated Process: 28 at 1738338193218
Generated Process: 29 at 1738338193218
Generated Process: 30 at 1738338193218
Generated Process: 31 at 1738338193218
Generated Process: 32 at 1738338193218
Generated Process: 33 at 1738338193218
Generated Process: 34 at 1738338193218
Generated Process: 35 at 1738338193218
Generated Process: 36 at 1738338193218
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Scheduled Process: 32
Replaced Process 29 with Process 33
Replaced Process 16 with Process 34
Replaced Process 17 with Process 35
Replaced Process 33 with Process 36
CPU 2 completed Process: 10
CPU 2 executing Process: 13
```

A second screenshot of the same Java IDE session, showing the continuation of the process scheduling log. The application has generated and scheduled many more processes, including:

```
Generated Process: 39 at 1738338194238
Generated Process: 40 at 1738338194238
Generated Process: 41 at 1738338194238
Generated Process: 42 at 1738338194238
Generated Process: 43 at 1738338194238
Generated Process: 44 at 1738338194238
Scheduled Process: 37
Replaced Process 21 with Process 38
Replaced Process 28 with Process 39
Replaced Process 35 with Process 41
Replaced Process 36 with Process 42
Replaced Process 22 with Process 43
Replaced Process 20 with Process 44
CPU 2 completed Process: 13
CPU 2 executing Process: 14
Scheduled Process: 46
CPU 1 completed Process: 11
CPU 3 completed Process: 12
CPU 1 executing Process: 15
CPU 3 executing Process: 18
Generated Process: 45 at 1738338195248
Generated Process: 46 at 1738338195248
Generated Process: 47 at 1738338195248
Generated Process: 48 at 1738338195248
Generated Process: 49 at 1738338195248
Generated Process: 50 at 1738338195248
Generated Process: 51 at 1738338195248
Generated Process: 52 at 1738338195248
Generated Process: 53 at 1738338195248
Scheduled Process: 45
```

```
OS / src > OSProject > main
OS / Project > OSProject > Run: OSProject
Run: OSProject
↑ Replaced Process 41 with Process 49
↑ Replaced Process 25 with Process 50
↓ Replaced Process 37 with Process 52
Replaced Process 46 with Process 53
Generated Process: 54 at 1738338196255
Generated Process: 55 at 1738338196255
Generated Process: 56 at 1738338196255
Generated Process: 57 at 1738338196255
Generated Process: 58 at 1738338196255
Generated Process: 59 at 1738338196255
Generated Process: 60 at 1738338196255
CPU 2 completed Process: 14
CPU 2 executing Process: 19
Scheduled Process: 48
Replaced Process 48 with Process 51
Replaced Process 51 with Process 54
Replaced Process 52 with Process 56
Replaced Process 26 with Process 57
Replaced Process 42 with Process 60
CPU 3 completed Process: 18
CPU 3 executing Process: 23
CPU 1 completed Process: 15
CPU 1 executing Process: 24
CPU 2 completed Process: 19
CPU 2 executing Process: 27
Scheduled Process: 55
Scheduled Process: 58
Scheduled Process: 59
CPU 2 completed Process: 27
CPU 2 executing Process: 30
```

```
OS / src > OSProject > main
OS / Project > OSProject > Run: OSProject
Run: OSProject
↑ CPU 2 completed Process: 27
↑ CPU 2 executing Process: 30
↓ Generated Process: 61 at 1738338197258
Generated Process: 62 at 1738338197258
Generated Process: 63 at 1738338197258
Generated Process: 64 at 1738338197258
Generated Process: 65 at 1738338197258
Generated Process: 66 at 1738338197258
Generated Process: 67 at 1738338197258
Generated Process: 68 at 1738338197258
Scheduled Process: 61
Replaced Process 58 with Process 62
Replaced Process 55 with Process 63
Replaced Process 59 with Process 64
Replaced Process 47 with Process 65
Replaced Process 49 with Process 68
Generated Process: 69 at 1738338198261
Generated Process: 70 at 1738338198261
Generated Process: 71 at 1738338198261
Generated Process: 72 at 1738338198261
Generated Process: 73 at 1738338198261
Generated Process: 74 at 1738338198261
Generated Process: 75 at 1738338198261
Generated Process: 76 at 1738338198261
Generated Process: 77 at 1738338198261
Generated Process: 78 at 1738338198261
CPU 3 completed Process: 23
CPU 1 completed Process: 24
CPU 1 executing Process: 32
CPU 3 executing Process: 31
```

```
OS / src / OSProject / main
OS / Project / OSProject / OSProject.java
OS / Run / OSProject
Generated Process: 70 at 1738338198261
Generated Process: 71 at 1738338198261
Generated Process: 72 at 1738338198261
Generated Process: 73 at 1738338198261
Generated Process: 74 at 1738338198261
Generated Process: 75 at 1738338198261
Generated Process: 76 at 1738338198261
Generated Process: 77 at 1738338198261
Generated Process: 78 at 1738338198261
CPU 3 completed Process: 23
CPU 1 completed Process: 24
CPU 1 executing Process: 32
CPU 3 executing Process: 31
Scheduled Process: 66
Scheduled Process: 67
Replaced Process 66 with Process 69
Replaced Process 69 with Process 70
Replaced Process 67 with Process 72
Replaced Process 72 with Process 73
Replaced Process 38 with Process 75
Replaced Process 62 with Process 76
CPU 2 completed Process: 30
Process 34 missed start deadline. Deducting score.
Process 34 removed from readyQueue
CPU 2 executing Process: 39
Simulation ended.
Final System Score: 961

Process finished with exit code 0
```

C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14439:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Fadak\Desktop\os\OS\out\production\OS OSProject

Generated Process: 1 at 1738338190169

Generated Process: 2 at 1738338190169

Generated Process: 3 at 1738338190169

Generated Process: 4 at 1738338190169

Generated Process: 5 at 1738338190169

Generated Process: 6 at 1738338190169

Generated Process: 7 at 1738338190169

Generated Process: 8 at 1738338190169

Generated Process: 9 at 1738338190169

Scheduled Process: 1

Scheduled Process: 2

Scheduled Process: 3

Scheduled Process: 4

Scheduled Process: 5
Scheduled Process: 6
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
CPU 3 executing Process: 1
CPU 1 executing Process: 3
CPU 2 executing Process: 2
CPU 1 completed Process: 3
CPU 1 executing Process: 5
CPU 2 completed Process: 2
CPU 2 executing Process: 6
CPU 1 completed Process: 5
CPU 1 executing Process: 7
Generated Process: 10 at 1738338191188
Generated Process: 11 at 1738338191188
Generated Process: 12 at 1738338191188
Generated Process: 13 at 1738338191188
Generated Process: 14 at 1738338191188
Generated Process: 15 at 1738338191188
Generated Process: 16 at 1738338191188
Generated Process: 17 at 1738338191188
Scheduled Process: 10
Scheduled Process: 11
Scheduled Process: 12
Scheduled Process: 13
Scheduled Process: 14

Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
CPU 3 completed Process: 1
CPU 3 executing Process: 8
CPU 3 completed Process: 8
CPU 3 executing Process: 9
Generated Process: 18 at 1738338192198
Generated Process: 19 at 1738338192198
Generated Process: 20 at 1738338192198
Generated Process: 21 at 1738338192198
Generated Process: 22 at 1738338192198
Generated Process: 23 at 1738338192198
Generated Process: 24 at 1738338192198
Generated Process: 25 at 1738338192198
Generated Process: 26 at 1738338192198
Generated Process: 27 at 1738338192198
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
Scheduled Process: 25
Scheduled Process: 26
Scheduled Process: 27

CPU 2 completed Process: 6
CPU 2 executing Process: 10
CPU 1 completed Process: 7
CPU 1 executing Process: 11
CPU 3 completed Process: 9
CPU 3 executing Process: 12
Generated Process: 28 at 1738338193218
Generated Process: 29 at 1738338193218
Generated Process: 30 at 1738338193218
Generated Process: 31 at 1738338193218
Generated Process: 32 at 1738338193218
Generated Process: 33 at 1738338193218
Generated Process: 34 at 1738338193218
Generated Process: 35 at 1738338193218
Generated Process: 36 at 1738338193218
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Scheduled Process: 32
Replaced Process 29 with Process 33
Replaced Process 16 with Process 34
Replaced Process 17 with Process 35
Replaced Process 33 with Process 36
CPU 2 completed Process: 10
CPU 2 executing Process: 13
Generated Process: 37 at 1738338194238

Generated Process: 38 at 1738338194238

Generated Process: 39 at 1738338194238

Generated Process: 40 at 1738338194238

Generated Process: 41 at 1738338194238

Generated Process: 42 at 1738338194238

Generated Process: 43 at 1738338194238

Generated Process: 44 at 1738338194238

Scheduled Process: 37

Replaced Process 21 with Process 38

Replaced Process 28 with Process 39

Replaced Process 35 with Process 41

Replaced Process 36 with Process 42

Replaced Process 22 with Process 43

Replaced Process 20 with Process 44

CPU 2 completed Process: 13

CPU 2 executing Process: 14

Scheduled Process: 40

CPU 1 completed Process: 11

CPU 3 completed Process: 12

CPU 1 executing Process: 15

CPU 3 executing Process: 18

Generated Process: 45 at 1738338195248

Generated Process: 46 at 1738338195248

Generated Process: 47 at 1738338195248

Generated Process: 48 at 1738338195248

Generated Process: 49 at 1738338195248

Generated Process: 50 at 1738338195248

Generated Process: 51 at 1738338195248

Generated Process: 52 at 1738338195248

Generated Process: 53 at 1738338195248

Scheduled Process: 45

Scheduled Process: 46

Replaced Process 40 with Process 47

Replaced Process 41 with Process 49

Replaced Process 25 with Process 50

Replaced Process 37 with Process 52

Replaced Process 46 with Process 53

Generated Process: 54 at 1738338196255

Generated Process: 55 at 1738338196255

Generated Process: 56 at 1738338196255

Generated Process: 57 at 1738338196255

Generated Process: 58 at 1738338196255

Generated Process: 59 at 1738338196255

Generated Process: 60 at 1738338196255

CPU 2 completed Process: 14

CPU 2 executing Process: 19

Scheduled Process: 48

Replaced Process 48 with Process 51

Replaced Process 51 with Process 54

Replaced Process 52 with Process 56

Replaced Process 26 with Process 57

Replaced Process 42 with Process 60

CPU 3 completed Process: 18

CPU 3 executing Process: 23

CPU 1 completed Process: 15

CPU 1 executing Process: 24

CPU 2 completed Process: 19

CPU 2 executing Process: 27

Scheduled Process: 55

Scheduled Process: 58

Scheduled Process: 59

CPU 2 completed Process: 27

CPU 2 executing Process: 30

Generated Process: 61 at 1738338197258

Generated Process: 62 at 1738338197258

Generated Process: 63 at 1738338197258

Generated Process: 64 at 1738338197258

Generated Process: 65 at 1738338197258

Generated Process: 66 at 1738338197258

Generated Process: 67 at 1738338197258

Generated Process: 68 at 1738338197258

Scheduled Process: 61

Replaced Process 58 with Process 62

Replaced Process 55 with Process 63

Replaced Process 59 with Process 64

Replaced Process 47 with Process 65

Replaced Process 49 with Process 68

Generated Process: 69 at 1738338198261

Generated Process: 70 at 1738338198261

Generated Process: 71 at 1738338198261

Generated Process: 72 at 1738338198261

Generated Process: 73 at 1738338198261
Generated Process: 74 at 1738338198261
Generated Process: 75 at 1738338198261
Generated Process: 76 at 1738338198261
Generated Process: 77 at 1738338198261
Generated Process: 78 at 1738338198261

CPU 3 completed Process: 23
CPU 1 completed Process: 24
CPU 1 executing Process: 32
CPU 3 executing Process: 31

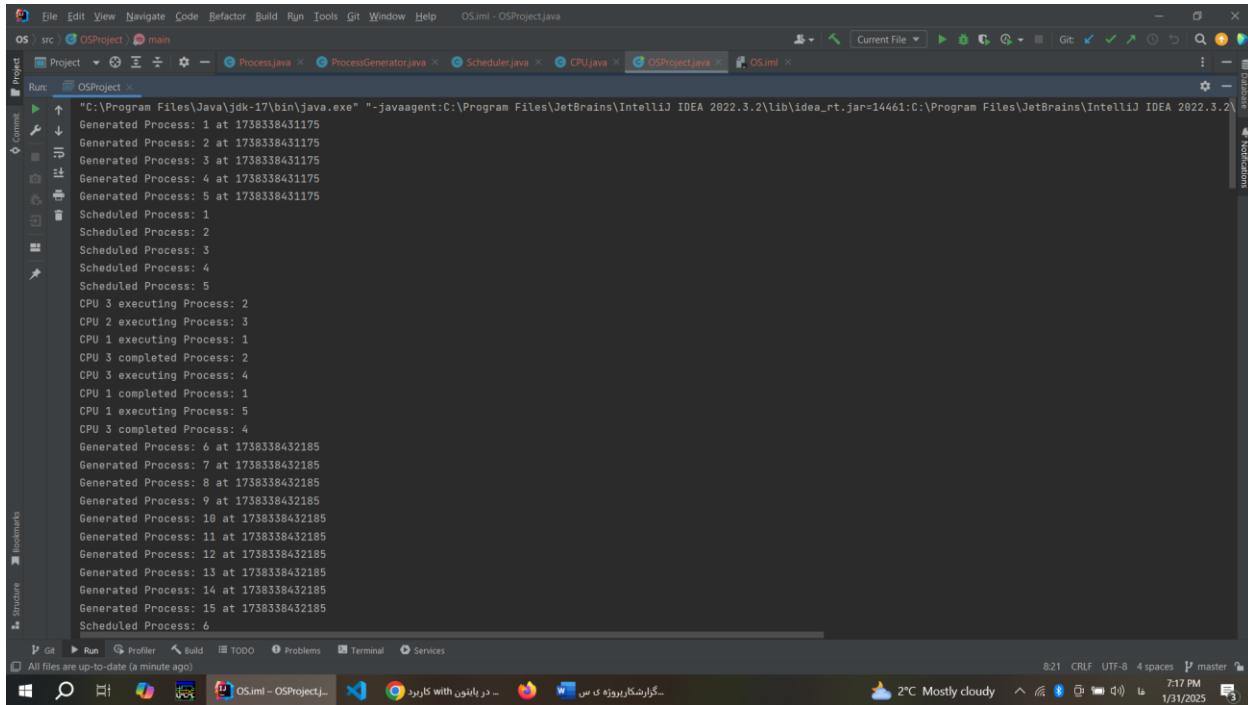
Scheduled Process: 66
Scheduled Process: 67

Replaced Process 66 with Process 69
Replaced Process 69 with Process 70
Replaced Process 67 with Process 72
Replaced Process 72 with Process 73
Replaced Process 38 with Process 75
Replaced Process 62 with Process 76

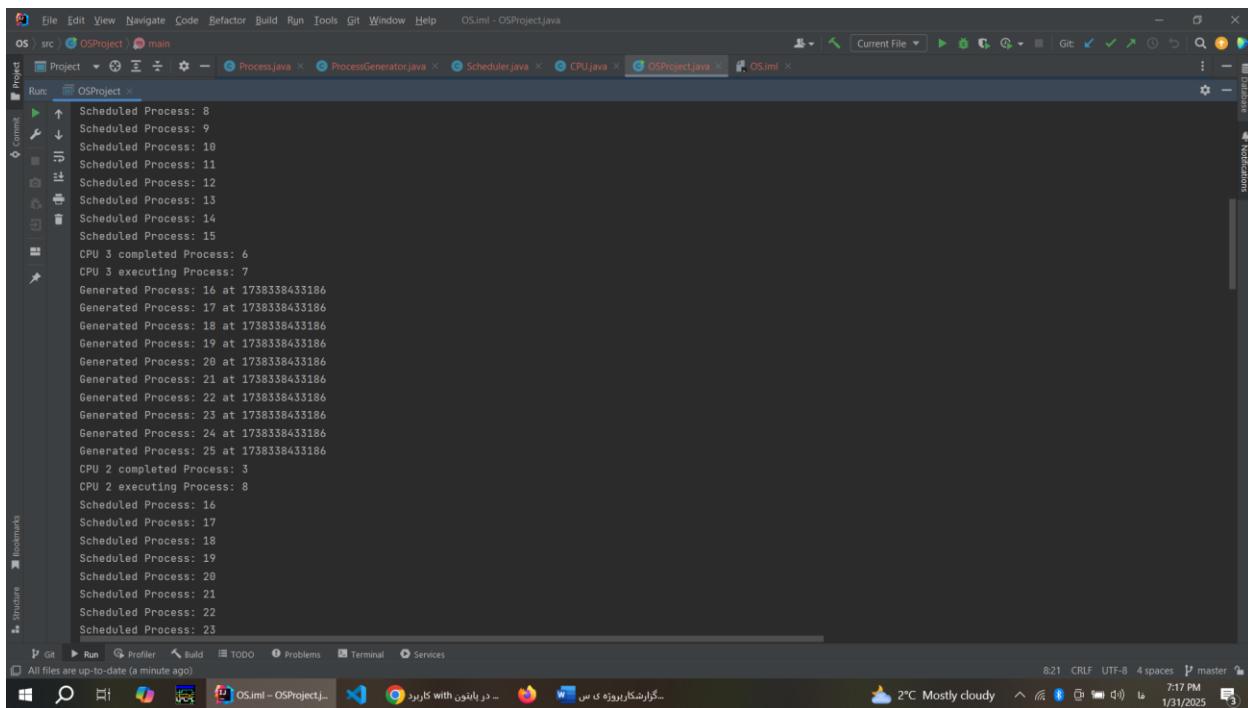
CPU 2 completed Process: 30
.Process 34 missed start deadline. Deducting score
Process 34 removed from readyQueue
CPU 2 executing Process: 39
.Simulation ended
Final System Score: 961

Process finished with exit code 0

اجرای چهارم



```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14461:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2"
Generated Process: 1 at 1738338431175
Generated Process: 2 at 1738338431175
Generated Process: 3 at 1738338431175
Generated Process: 4 at 1738338431175
Generated Process: 5 at 1738338431175
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
CPU 3 executing Process: 2
CPU 2 executing Process: 3
CPU 1 executing Process: 1
CPU 3 completed Process: 2
CPU 3 executing Process: 4
CPU 1 completed Process: 1
CPU 1 executing Process: 5
CPU 3 completed Process: 4
Generated Process: 6 at 1738338432185
Generated Process: 7 at 1738338432185
Generated Process: 8 at 1738338432185
Generated Process: 9 at 1738338432185
Generated Process: 10 at 1738338432185
Generated Process: 11 at 1738338432185
Generated Process: 12 at 1738338432185
Generated Process: 13 at 1738338432185
Generated Process: 14 at 1738338432185
Generated Process: 15 at 1738338432185
Scheduled Process: 6
All files are up-to-date (a minute ago)
```



```
Scheduled Process: 8
Scheduled Process: 9
Scheduled Process: 10
Scheduled Process: 11
Scheduled Process: 12
Scheduled Process: 13
Scheduled Process: 14
Scheduled Process: 15
CPU 3 completed Process: 6
CPU 3 executing Process: 7
Generated Process: 16 at 1738338433186
Generated Process: 17 at 1738338433186
Generated Process: 18 at 1738338433186
Generated Process: 19 at 1738338433186
Generated Process: 20 at 1738338433186
Generated Process: 21 at 1738338433186
Generated Process: 22 at 1738338433186
Generated Process: 23 at 1738338433186
Generated Process: 24 at 1738338433186
Generated Process: 25 at 1738338433186
CPU 2 completed Process: 3
CPU 2 executing Process: 8
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
All files are up-to-date (a minute ago)
```

The image shows two side-by-side terminal panes from a Java IDE, likely IntelliJ IDEA, running a Java application named OSProject. Both panes display the same sequence of log messages related to a process scheduler.

The log messages detail the execution of processes across three CPUs (CPU 1, CPU 2, CPU 3) over time steps 22 to 46. Key events include:

- Scheduled Process: 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.
- CPU 1 completed Process: 5, 9, 7, 10, 199.
- CPU 1 executing Process: 6, 8, 13, 14.
- CPU 3 completed Process: 3, 11, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.
- CPU 3 executing Process: 1, 2, 4, 12, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39.
- Generated Process: 26 at 1738338434199, 27 at 1738338434199, 28 at 1738338434199, 29 at 1738338434199, 30 at 1738338434199, 31 at 1738338434199, 32 at 1738338434199, 33 at 1738338434199, 34 at 1738338434199, 35 at 1738338434199, 36 at 1738338434199, 37 at 1738338434199, 38 at 1738338434199, 39 at 1738338434199.
- Replaced Process 20 with Process 31, 12 with Process 32, 11 with Process 33, 17 with Process 34.
- CPU 2 completed Process: 8, 13.
- CPU 3 completed Process: 10, 14.

The bottom status bar indicates the environment is 2°C, Mostly cloudy, and the date is 1/31/2025.

The screenshot displays two separate runs of a Java application within the IntelliJ IDEA IDE. Both runs are titled 'OSProject' and show the 'Run' tool window.

Top Run:

- Generated Process: 49 at 1738338437240
- Generated Process: 50 at 1738338437240
- Generated Process: 51 at 1738338437240
- Generated Process: 52 at 1738338437240
- Generated Process: 53 at 1738338437240
- Generated Process: 54 at 1738338437240
- CPU 2 completed Process: 16
- CPU 2 executing Process: 23
- Scheduled Process: 45
- Replaced Process 46 with Process 47
- Replaced Process 47 with Process 48
- Replaced Process 27 with Process 49
- Replaced Process 42 with Process 50
- Replaced Process 39 with Process 51
- Replaced Process 25 with Process 53
- CPU 1 completed Process: 18
- CPU 1 executing Process: 26
- Scheduled Process: 52
- Replaced Process 52 with Process 54
- Generated Process: 55 at 1738338438250
- Generated Process: 56 at 1738338438250
- Generated Process: 57 at 1738338438250
- Generated Process: 58 at 1738338438250
- Generated Process: 59 at 1738338438250
- Replaced Process 54 with Process 55
- Replaced Process 33 with Process 57
- Replaced Process 31 with Process 59
- CPU 1 completed Process: 26
- CPU 1 executing Process: 28

Bottom Run:

- Generated Process: 59 at 1738338438250
- Replaced Process 54 with Process 55
- Replaced Process 33 with Process 57
- Replaced Process 31 with Process 59
- CPU 1 completed Process: 26
- CPU 1 executing Process: 28
- Scheduled Process: 56
- CPU 3 completed Process: 21
- CPU 3 executing Process: 29
- Scheduled Process: 58
- Generated Process: 60 at 1738338439255
- Generated Process: 61 at 1738338439255
- Generated Process: 62 at 1738338439255
- Generated Process: 63 at 1738338439255
- Generated Process: 64 at 1738338439255
- Generated Process: 65 at 1738338439255
- Generated Process: 66 at 1738338439255
- Generated Process: 67 at 1738338439255
- CPU 2 completed Process: 23
- CPU 2 executing Process: 32
- Scheduled Process: 60
- Replaced Process 58 with Process 61
- Replaced Process 61 with Process 62
- Replaced Process 56 with Process 65
- Replaced Process 65 with Process 67
- Simulation ended.
- Final System Score: 1031

```
C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14461:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Fadak\Desktop\os\OS\out\production\OS OSProject
```

Generated Process: 1 at 1738338431175

Generated Process: 2 at 1738338431175

Generated Process: 3 at 1738338431175

Generated Process: 4 at 1738338431175

Generated Process: 5 at 1738338431175

Scheduled Process: 1

Scheduled Process: 2

Scheduled Process: 3

Scheduled Process: 4

Scheduled Process: 5

CPU 3 executing Process: 2

CPU 2 executing Process: 3

CPU 1 executing Process: 1

CPU 3 completed Process: 2

CPU 3 executing Process: 4

CPU 1 completed Process: 1

CPU 1 executing Process: 5

CPU 3 completed Process: 4

Generated Process: 6 at 1738338432185

Generated Process: 7 at 1738338432185

Generated Process: 8 at 1738338432185

Generated Process: 9 at 1738338432185

Generated Process: 10 at 1738338432185

Generated Process: 11 at 1738338432185

Generated Process: 12 at 1738338432185

Generated Process: 13 at 1738338432185

Generated Process: 14 at 1738338432185

Generated Process: 15 at 1738338432185

Scheduled Process: 6

CPU 3 executing Process: 6

Scheduled Process: 7

Scheduled Process: 8

Scheduled Process: 9

Scheduled Process: 10

Scheduled Process: 11

Scheduled Process: 12

Scheduled Process: 13

Scheduled Process: 14

Scheduled Process: 15

CPU 3 completed Process: 6

CPU 3 executing Process: 7

Generated Process: 16 at 1738338433186

Generated Process: 17 at 1738338433186

Generated Process: 18 at 1738338433186

Generated Process: 19 at 1738338433186

Generated Process: 20 at 1738338433186

Generated Process: 21 at 1738338433186

Generated Process: 22 at 1738338433186

Generated Process: 23 at 1738338433186

Generated Process: 24 at 1738338433186

Generated Process: 25 at 1738338433186

CPU 2 completed Process: 3

CPU 2 executing Process: 8

Scheduled Process: 16

Scheduled Process: 17

Scheduled Process: 18

Scheduled Process: 19

Scheduled Process: 20

Scheduled Process: 21

Scheduled Process: 22

Scheduled Process: 23

Scheduled Process: 24

Scheduled Process: 25

CPU 1 completed Process: 5

CPU 1 executing Process: 9

CPU 3 completed Process: 7

CPU 3 executing Process: 10

Generated Process: 26 at 1738338434199

Generated Process: 27 at 1738338434199

Generated Process: 28 at 1738338434199

Generated Process: 29 at 1738338434199

Generated Process: 30 at 1738338434199

Generated Process: 31 at 1738338434199

Generated Process: 32 at 1738338434199

Generated Process: 33 at 1738338434199

Generated Process: 34 at 1738338434199

Scheduled Process: 26

Scheduled Process: 27

Scheduled Process: 28

Scheduled Process: 29

Scheduled Process: 30

Replaced Process 20 with Process 31

Replaced Process 12 with Process 32

Replaced Process 11 with Process 33

Replaced Process 17 with Process 34

CPU 2 completed Process: 8

CPU 2 executing Process: 13

CPU 3 completed Process: 10

CPU 3 executing Process: 14

CPU 1 completed Process: 9

CPU 1 executing Process: 15

Generated Process: 35 at 1738338435214

Generated Process: 36 at 1738338435214

Generated Process: 37 at 1738338435214

Generated Process: 38 at 1738338435214

Generated Process: 39 at 1738338435214

Scheduled Process: 35

Scheduled Process: 36

Scheduled Process: 37

Replaced Process 22 with Process 38

Replaced Process 30 with Process 39

CPU 2 completed Process: 13

CPU 2 executing Process: 16

CPU 1 completed Process: 15

CPU 1 executing Process: 18

Generated Process: 40 at 1738338436231

Generated Process: 41 at 1738338436231

Generated Process: 42 at 1738338436231

Generated Process: 43 at 1738338436231

Generated Process: 44 at 1738338436231

CPU 3 completed Process: 14

CPU 3 executing Process: 19

Scheduled Process: 40

Scheduled Process: 41

Scheduled Process: 42

Replaced Process 41 with Process 43

Replaced Process 24 with Process 44

CPU 3 completed Process: 19

CPU 3 executing Process: 21

Generated Process: 45 at 1738338437240

Generated Process: 46 at 1738338437240

Generated Process: 47 at 1738338437240

Generated Process: 48 at 1738338437240

Generated Process: 49 at 1738338437240

Generated Process: 50 at 1738338437240

Generated Process: 51 at 1738338437240

Generated Process: 52 at 1738338437240

Generated Process: 53 at 1738338437240

Generated Process: 54 at 1738338437240

CPU 2 completed Process: 16

CPU 2 executing Process: 23

Scheduled Process: 45

Scheduled Process: 46

Replaced Process 46 with Process 47

Replaced Process 47 with Process 48

Replaced Process 27 with Process 49

Replaced Process 42 with Process 50

Replaced Process 39 with Process 51

Replaced Process 25 with Process 53

CPU 1 completed Process: 18

CPU 1 executing Process: 26

Scheduled Process: 52

Replaced Process 52 with Process 54

Generated Process: 55 at 1738338438250

Generated Process: 56 at 1738338438250

Generated Process: 57 at 1738338438250

Generated Process: 58 at 1738338438250

Generated Process: 59 at 1738338438250

Replaced Process 54 with Process 55

Replaced Process 33 with Process 57

Replaced Process 31 with Process 59

CPU 1 completed Process: 26

CPU 1 executing Process: 28

Scheduled Process: 56

CPU 3 completed Process: 21

CPU 3 executing Process: 29

Scheduled Process: 58

Generated Process: 60 at 1738338439255

Generated Process: 61 at 1738338439255

Generated Process: 62 at 1738338439255

Generated Process: 63 at 1738338439255

Generated Process: 64 at 1738338439255

Generated Process: 65 at 1738338439255

Generated Process: 66 at 1738338439255

Generated Process: 67 at 1738338439255

CPU 2 completed Process: 23

CPU 2 executing Process: 32

Scheduled Process: 60

Replaced Process 58 with Process 61

Replaced Process 61 with Process 62

Replaced Process 56 with Process 65

Replaced Process 65 with Process 67

.Simulation ended

Final System Score: 1031

Process finished with exit code 0

The screenshot shows an IDE interface with multiple tabs open, including Process.java, ProcessGenerator.java, Scheduler.java, CPU.java, and OSProject.java. The OSProject.java tab is active, displaying the following Java code:

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14486:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin"
Generated Process: 1 at 1738338722201
Generated Process: 2 at 1738338722201
Generated Process: 3 at 1738338722201
Generated Process: 4 at 1738338722201
Generated Process: 5 at 1738338722201
Generated Process: 6 at 1738338722201
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
Scheduled Process: 6
CPU 1 executing Process: 2
CPU 2 executing Process: 1
CPU 3 executing Process: 3
Generated Process: 7 at 1738338723210
Generated Process: 8 at 1738338723210
Generated Process: 9 at 1738338723210
Generated Process: 10 at 1738338723210
Generated Process: 11 at 1738338723210
Generated Process: 12 at 1738338723210
Generated Process: 13 at 1738338723210
Generated Process: 14 at 1738338723210
Generated Process: 15 at 1738338723210
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
Scheduled Process: 10
Scheduled Process: 11
```

The terminal window at the bottom shows the output of the Java application, which matches the log text above. The status bar indicates the file is up-to-date, the code has 1951 lines, and it's in master branch.

The image shows two side-by-side screenshots of a Java IDE (IntelliJ IDEA) displaying the output of a Java application named OSProject. The application simulates a process scheduler across three CPUs.

Run 1 (Left):

```
Scheduled Process: 14
Scheduled Process: 15
CPU 1 completed Process: 2
CPU 1 executing Process: 4
CPU 3 completed Process: 3
CPU 3 executing Process: 5
CPU 2 completed Process: 1
CPU 2 executing Process: 6
CPU 1 completed Process: 4
CPU 1 executing Process: 7
Generated Process: 16 at 1738338724222
Generated Process: 17 at 1738338724222
Generated Process: 18 at 1738338724222
Generated Process: 19 at 1738338724222
Generated Process: 20 at 1738338724222
Generated Process: 21 at 1738338724222
Generated Process: 22 at 1738338724222
Generated Process: 23 at 1738338724222
Generated Process: 24 at 1738338724222
Generated Process: 25 at 1738338724222
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
Scheduled Process: 25
```

Run 2 (Right):

```
Scheduled Process: 24
Scheduled Process: 25
CPU 1 completed Process: 7
CPU 1 executing Process: 8
CPU 2 completed Process: 6
CPU 2 executing Process: 9
Generated Process: 26 at 1738338725234
Generated Process: 27 at 1738338725234
Generated Process: 28 at 1738338725234
Generated Process: 29 at 1738338725234
Generated Process: 30 at 1738338725234
Generated Process: 31 at 1738338725234
Generated Process: 32 at 1738338725234
Generated Process: 33 at 1738338725234
Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
Replaced Process 23 with Process 30
Replaced Process 10 with Process 31
Replaced Process 22 with Process 32
Replaced Process 24 with Process 33
CPU 3 completed Process: 5
CPU 3 executing Process: 11
CPU 2 completed Process: 9
CPU 1 completed Process: 8
CPU 1 executing Process: 13
CPU 2 executing Process: 12
Generated Process: 34 at 1738338726241
Generated Process: 35 at 1738338726241
```

Both runs show the same sequence of scheduled processes, but Run 2 includes additional information about replaced processes (e.g., Process 23 replaced by 30, 10 replaced by 31, etc.) and CPU utilization details like executing and completed processes.

```
OS / src > OSProject > main
OS / Project > OSProject > Run: OSProject
Generated Process: 38 at 1738338726241
Generated Process: 39 at 1738338726241
Generated Process: 40 at 1738338726241
Generated Process: 41 at 1738338726241
Generated Process: 42 at 1738338726241
CPU 3 completed Process: 11
CPU 2 completed Process: 12
CPU 2 executing Process: 15
Scheduled Process: 34
CPU 3 executing Process: 14
Scheduled Process: 35
Scheduled Process: 36
Scheduled Process: 37
Scheduled Process: 38
Replaced Process 17 with Process 40
Replaced Process 19 with Process 41
CPU 2 completed Process: 15
CPU 2 executing Process: 16
Scheduled Process: 39
Generated Process: 43 at 1738338727255
Generated Process: 44 at 1738338727255
Generated Process: 45 at 1738338727255
Generated Process: 46 at 1738338727255
Generated Process: 47 at 1738338727255
Generated Process: 48 at 1738338727255
Generated Process: 49 at 1738338727255
Generated Process: 50 at 1738338727255
Replaced Process 39 with Process 45
Replaced Process 27 with Process 46
Replaced Process 21 with Process 47

195:1 CRLF UTF-8 4 spaces P master

OS / src > OSProject > main
OS / Project > OSProject > Run: OSProject
Scheduled Process: 42
Scheduled Process: 43
Replaced Process 42 with Process 44
Generated Process: 51 at 1738338728259
Generated Process: 52 at 1738338728259
Generated Process: 53 at 1738338728259
Generated Process: 54 at 1738338728259
Generated Process: 55 at 1738338728259
Generated Process: 56 at 1738338728259
Replaced Process 43 with Process 51
Replaced Process 44 with Process 52
Replaced Process 52 with Process 53
Replaced Process 28 with Process 54
CPU 1 completed Process: 18
CPU 1 executing Process: 25
CPU 2 completed Process: 16
CPU 2 executing Process: 26
Scheduled Process: 48
Scheduled Process: 55
CPU 1 completed Process: 25
CPU 1 executing Process: 29
Scheduled Process: 56
Generated Process: 57 at 1738338729275
Generated Process: 58 at 1738338729275
Generated Process: 59 at 1738338729275
Generated Process: 60 at 1738338729275
Generated Process: 61 at 1738338729275
Generated Process: 62 at 1738338729275
Generated Process: 63 at 1738338729275
Generated Process: 64 at 1738338729275

136:39 CRLF UTF-8 4 spaces P master
```

The screenshot displays two separate runs of a Java application within the IntelliJ IDEA IDE. Both runs show the same sequence of events in the 'Run' tool window:

- Scheduled Process: 57
- Replaced Process 57 with Process 60
- Replaced Process 60 with Process 64
- CPU 3 completed Process: 20
- CPU 3 executing Process: 31
- Scheduled Process: 63
- Replaced Process 63 with Process 65
- Generated Process: 66 at 1738338736289
- Generated Process: 67 at 1738338736289
- Generated Process: 68 at 1738338736289
- Generated Process: 69 at 1738338736289
- Generated Process: 70 at 1738338736289
- Generated Process: 71 at 1738338736289
- Generated Process: 72 at 1738338736289
- CPU 3 completed Process: 31
- CPU 3 executing Process: 32
- Scheduled Process: 66
- Replaced Process 66 with Process 67
- Replaced Process 64 with Process 68
- Replaced Process 65 with Process 69
- Replaced Process 62 with Process 70
- Replaced Process 67 with Process 71
- Replaced Process 69 with Process 72
- CPU 1 completed Process: 29
- CPU 1 executing Process: 33

In the bottom run, the log concludes with:

- Simulation ended.
- Final System Score: 1432
- Process finished with exit code 0

The status bar at the bottom of both windows indicates the date as 1/31/2025, the time as 7:23 PM, and the weather as 2°C Mostly cloudy.

```
C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14486:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin" -Dfile.encoding=UTF-8 -classpath C:\Users\Fadak\Desktop\os\OS\out\production\OS OSProject
```

Generated Process: 1 at 1738338722201

Generated Process: 2 at 1738338722201

Generated Process: 3 at 1738338722201

Generated Process: 4 at 1738338722201

Generated Process: 5 at 1738338722201

Generated Process: 6 at 1738338722201

Scheduled Process: 1

Scheduled Process: 2

Scheduled Process: 3

Scheduled Process: 4

Scheduled Process: 5

Scheduled Process: 6

CPU 1 executing Process: 2

CPU 2 executing Process: 1

CPU 3 executing Process: 3

Generated Process: 7 at 1738338723210

Generated Process: 8 at 1738338723210

Generated Process: 9 at 1738338723210

Generated Process: 10 at 1738338723210

Generated Process: 11 at 1738338723210

Generated Process: 12 at 1738338723210

Generated Process: 13 at 1738338723210

Generated Process: 14 at 1738338723210

Generated Process: 15 at 1738338723210

Scheduled Process: 7

Scheduled Process: 8

Scheduled Process: 9

Scheduled Process: 10

Scheduled Process: 11

Scheduled Process: 12
Scheduled Process: 13
Scheduled Process: 14
Scheduled Process: 15
CPU 1 completed Process: 2
CPU 1 executing Process: 4
CPU 3 completed Process: 3
CPU 3 executing Process: 5
CPU 2 completed Process: 1
CPU 2 executing Process: 6
CPU 1 completed Process: 4
CPU 1 executing Process: 7
Generated Process: 16 at 1738338724222
Generated Process: 17 at 1738338724222
Generated Process: 18 at 1738338724222
Generated Process: 19 at 1738338724222
Generated Process: 20 at 1738338724222
Generated Process: 21 at 1738338724222
Generated Process: 22 at 1738338724222
Generated Process: 23 at 1738338724222
Generated Process: 24 at 1738338724222
Generated Process: 25 at 1738338724222
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20

Scheduled Process: 21

Scheduled Process: 22

Scheduled Process: 23

Scheduled Process: 24

Scheduled Process: 25

CPU 1 completed Process: 7

CPU 1 executing Process: 8

CPU 2 completed Process: 6

CPU 2 executing Process: 9

Generated Process: 26 at 1738338725234

Generated Process: 27 at 1738338725234

Generated Process: 28 at 1738338725234

Generated Process: 29 at 1738338725234

Generated Process: 30 at 1738338725234

Generated Process: 31 at 1738338725234

Generated Process: 32 at 1738338725234

Generated Process: 33 at 1738338725234

Scheduled Process: 26

Scheduled Process: 27

Scheduled Process: 28

Scheduled Process: 29

Replaced Process 23 with Process 30

Replaced Process 10 with Process 31

Replaced Process 22 with Process 32

Replaced Process 24 with Process 33

CPU 3 completed Process: 5

CPU 3 executing Process: 11

CPU 2 completed Process: 9
CPU 1 completed Process: 8
CPU 1 executing Process: 13
CPU 2 executing Process: 12
Generated Process: 34 at 1738338726241
Generated Process: 35 at 1738338726241
Generated Process: 36 at 1738338726241
Generated Process: 37 at 1738338726241
Generated Process: 38 at 1738338726241
Generated Process: 39 at 1738338726241
Generated Process: 40 at 1738338726241
Generated Process: 41 at 1738338726241
Generated Process: 42 at 1738338726241
CPU 3 completed Process: 11
CPU 2 completed Process: 12
CPU 2 executing Process: 15
Scheduled Process: 34
CPU 3 executing Process: 14
Scheduled Process: 35
Scheduled Process: 36
Scheduled Process: 37
Scheduled Process: 38
Replaced Process 17 with Process 40
Replaced Process 19 with Process 41
CPU 2 completed Process: 15
CPU 2 executing Process: 16
Scheduled Process: 39

Generated Process: 43 at 1738338727255

Generated Process: 44 at 1738338727255

Generated Process: 45 at 1738338727255

Generated Process: 46 at 1738338727255

Generated Process: 47 at 1738338727255

Generated Process: 48 at 1738338727255

Generated Process: 49 at 1738338727255

Generated Process: 50 at 1738338727255

Replaced Process 39 with Process 45

Replaced Process 27 with Process 46

Replaced Process 21 with Process 47

Replaced Process 40 with Process 49

Replaced Process 36 with Process 50

CPU 1 completed Process: 13

CPU 1 executing Process: 18

CPU 3 completed Process: 14

CPU 3 executing Process: 20

Scheduled Process: 42

Scheduled Process: 43

Replaced Process 42 with Process 44

Generated Process: 51 at 1738338728259

Generated Process: 52 at 1738338728259

Generated Process: 53 at 1738338728259

Generated Process: 54 at 1738338728259

Generated Process: 55 at 1738338728259

Generated Process: 56 at 1738338728259

Replaced Process 43 with Process 51

Replaced Process 44 with Process 52

Replaced Process 52 with Process 53

Replaced Process 28 with Process 54

CPU 1 completed Process: 18

CPU 1 executing Process: 25

CPU 2 completed Process: 16

CPU 2 executing Process: 26

Scheduled Process: 48

Scheduled Process: 55

CPU 1 completed Process: 25

CPU 1 executing Process: 29

Scheduled Process: 56

Generated Process: 57 at 1738338729275

Generated Process: 58 at 1738338729275

Generated Process: 59 at 1738338729275

Generated Process: 60 at 1738338729275

Generated Process: 61 at 1738338729275

Generated Process: 62 at 1738338729275

Generated Process: 63 at 1738338729275

Generated Process: 64 at 1738338729275

Generated Process: 65 at 1738338729275

Replaced Process 56 with Process 58

Replaced Process 48 with Process 59

Replaced Process 55 with Process 61

Replaced Process 59 with Process 62

CPU 2 completed Process: 26

CPU 2 executing Process: 30

Scheduled Process: 57

Replaced Process 57 with Process 60

Replaced Process 60 with Process 64

CPU 3 completed Process: 20

CPU 3 executing Process: 31

Scheduled Process: 63

Replaced Process 63 with Process 65

Generated Process: 66 at 1738338730289

Generated Process: 67 at 1738338730289

Generated Process: 68 at 1738338730289

Generated Process: 69 at 1738338730289

Generated Process: 70 at 1738338730289

Generated Process: 71 at 1738338730289

Generated Process: 72 at 1738338730289

CPU 3 completed Process: 31

CPU 3 executing Process: 32

Scheduled Process: 66

Replaced Process 66 with Process 67

Replaced Process 64 with Process 68

Replaced Process 65 with Process 69

Replaced Process 62 with Process 70

Replaced Process 67 with Process 71

Replaced Process 69 with Process 72

CPU 1 completed Process: 29

CPU 1 executing Process: 33

.Simulation ended

Final System Score: 1432

Process finished with exit code 0

The screenshot shows the IntelliJ IDEA interface with a Java application running. The terminal window displays the following output:

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14496:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\bin"
Generated Process: 1 at 1738338878204
Generated Process: 2 at 1738338878204
Generated Process: 3 at 1738338878204
Generated Process: 4 at 1738338878204
Generated Process: 5 at 1738338878204
Generated Process: 6 at 1738338878204
CPU 3 executing Process: 1
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
CPU 2 executing Process: 2
Scheduled Process: 4
CPU 1 executing Process: 3
Scheduled Process: 5
Scheduled Process: 6
CPU 2 completed Process: 2
CPU 2 executing Process: 4
CPU 1 completed Process: 3
CPU 1 executing Process: 5
Generated Process: 7 at 1738338879225
Generated Process: 8 at 1738338879225
Generated Process: 9 at 1738338879225
Generated Process: 10 at 1738338879225
Generated Process: 11 at 1738338879225
Generated Process: 12 at 1738338879225
Generated Process: 13 at 1738338879225
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
```

The status bar at the bottom right indicates: 195:1 CRLF UTF-8 4 spaces P master 7:25 PM 2°C Mostly cloudy 1/31/2025.

The image shows two side-by-side screenshots of a Java IDE (IntelliJ IDEA) interface. Both screenshots display a terminal window titled 'Run' with the following log output:

```
Scheduled Process: 12
Scheduled Process: 13
CPU 2 completed Process: 4
CPU 3 completed Process: 1
CPU 3 executing Process: 7
CPU 2 executing Process: 6
Generated Process: 14 at 1738338880229
Generated Process: 15 at 1738338880229
Generated Process: 16 at 1738338880229
Generated Process: 17 at 1738338880229
Generated Process: 18 at 1738338880229
CPU 3 completed Process: 7
CPU 1 completed Process: 5
CPU 1 executing Process: 9
CPU 3 executing Process: 8
Scheduled Process: 14
Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
CPU 1 completed Process: 9
CPU 1 executing Process: 10
Generated Process: 19 at 1738338881241
Generated Process: 20 at 1738338881241
Generated Process: 21 at 1738338881241
Generated Process: 22 at 1738338881241
Generated Process: 23 at 1738338881241
Generated Process: 24 at 1738338881241
Generated Process: 25 at 1738338881241
Generated Process: 26 at 1738338881241
```

The IDE interface includes a top menu bar (File, Edit, View, Navigate, Code, Refactor, Build, Run, Tools, Git, Window, Help), a toolbar, and several tabs for different files like Process.java, ProcessGenerator.java, Scheduler.java, CPU.java, OSProject.java, and OS.iml. A status bar at the bottom shows file statistics (195:1, CRLF, UTF-8, 4 spaces, master branch), weather (2°C, Mostly cloudy), and system information (7:25 PM, 1/31/2025).

```
Scheduled Process: 32
Scheduled Process: 33
Replaced Process 23 with Process 34
Replaced Process 26 with Process 35
Replaced Process 32 with Process 36
CPU 2 completed Process: 11
CPU 2 executing Process: 14
Scheduled Process: 37
CPU 3 completed Process: 12
CPU 3 executing Process: 15
Generated Process: 38 at 1738338883260
Generated Process: 39 at 1738338883260
Generated Process: 40 at 1738338883260
Generated Process: 41 at 1738338883260
Generated Process: 42 at 1738338883260
Generated Process: 43 at 1738338883260
Generated Process: 44 at 1738338883260
Generated Process: 45 at 1738338883260
Scheduled Process: 38
Replaced Process 37 with Process 39
Replaced Process 33 with Process 40
Replaced Process 22 with Process 41
Replaced Process 31 with Process 42
Replaced Process 28 with Process 43
Replaced Process 41 with Process 44
CPU 1 completed Process: 13
CPU 1 executing Process: 16
Scheduled Process: 45
CPU 1 completed Process: 16
CPU 1 executing Process: 17

Generated Process: 46 at 1738338884275
Generated Process: 47 at 1738338884275
Generated Process: 48 at 1738338884275
Generated Process: 49 at 1738338884275
Generated Process: 50 at 1738338884275
Generated Process: 51 at 1738338884275
Generated Process: 52 at 1738338884275
Generated Process: 53 at 1738338884275
Generated Process: 54 at 1738338884275
Generated Process: 55 at 1738338884275
CPU 3 completed Process: 15
CPU 3 executing Process: 19
Scheduled Process: 46
Scheduled Process: 47
Scheduled Process: 48
Replaced Process 46 with Process 49
Replaced Process 45 with Process 50
Replaced Process 21 with Process 51
Replaced Process 49 with Process 52
Replaced Process 35 with Process 53
Replaced Process 30 with Process 55
CPU 1 completed Process: 17
CPU 3 completed Process: 19
CPU 3 executing Process: 24
CPU 1 executing Process: 20
Scheduled Process: 54
Generated Process: 56 at 1738338885277
Generated Process: 57 at 1738338885277
Generated Process: 58 at 1738338885277
Generated Process: 59 at 1738338885277
```

The screenshot shows a Java IDE interface with two tabs open: 'OS.java' and 'OSProject.java'. The 'OSProject.java' tab is active, displaying the following console output:

```
Generated Process: 46 at 1738338884275
Generated Process: 47 at 1738338884275
Generated Process: 48 at 1738338884275
Generated Process: 49 at 1738338884275
Generated Process: 50 at 1738338884275
Generated Process: 51 at 1738338884275
Generated Process: 52 at 1738338884275
Generated Process: 53 at 1738338884275
Generated Process: 54 at 1738338884275
Generated Process: 55 at 1738338884275
CPU 3 completed Process: 15
CPU 3 executing Process: 19
Scheduled Process: 46
Scheduled Process: 47
Scheduled Process: 48
Replaced Process 46 with Process 49
Replaced Process 45 with Process 50
Replaced Process 21 with Process 51
Replaced Process 49 with Process 52
Replaced Process 35 with Process 53
Replaced Process 30 with Process 55
CPU 1 completed Process: 17
CPU 3 completed Process: 19
CPU 3 executing Process: 24
CPU 1 executing Process: 20
Scheduled Process: 54
Generated Process: 56 at 1738338885277
Generated Process: 57 at 1738338885277
Generated Process: 58 at 1738338885277
Generated Process: 59 at 1738338885277
```

The screenshot shows a Java IDE interface with two tabs open: 'OS.java' and 'OSProject.java'. The 'OSProject.java' tab is active, displaying the following console output:

```
Scheduled Process: 61
Generated Process: 62 at 1738338886285
Generated Process: 63 at 1738338886285
Generated Process: 64 at 1738338886285
Generated Process: 65 at 1738338886285
Generated Process: 66 at 1738338886285
Generated Process: 67 at 1738338886285
Generated Process: 68 at 1738338886285
Generated Process: 69 at 1738338886285
CPU 1 completed Process: 20
CPU 1 executing Process: 29
Scheduled Process: 62
Replaced Process 61 with Process 63
Replaced Process 63 with Process 65
Replaced Process 65 with Process 66
Replaced Process 38 with Process 67
CPU 1 completed Process: 29
CPU 1 executing Process: 34
CPU 2 completed Process: 27
CPU 2 executing Process: 36
Scheduled Process: 64
Scheduled Process: 68
Replaced Process 64 with Process 69
CPU 1 completed Process: 34
CPU 1 executing Process: 39
Simulation ended.
Final System Score: 1199

Process finished with exit code 0
```

```
"C:\Program Files\Java\jdk1.8.0_201\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14513:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2"
Generated Process: 1 at 1738339019125
Generated Process: 2 at 1738339019125
Generated Process: 3 at 1738339019125
Generated Process: 4 at 1738339019125
Generated Process: 5 at 1738339019125
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
CPU 2 executing Process: 1
CPU 3 executing Process: 3
CPU 1 executing Process: 2
CPU 2 completed Process: 1
CPU 2 executing Process: 5
Generated Process: 6 at 1738339020139
Generated Process: 7 at 1738339020139
Generated Process: 8 at 1738339020139
Generated Process: 9 at 1738339020139
Generated Process: 10 at 1738339020139
Generated Process: 11 at 1738339020139
Generated Process: 12 at 1738339020139
Generated Process: 13 at 1738339020139
Generated Process: 14 at 1738339020139
Generated Process: 15 at 1738339020139
Scheduled Process: 6
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
All files are up-to-date (moments ago)
```



```
Scheduled Process: 12
Scheduled Process: 13
Scheduled Process: 14
Scheduled Process: 15
CPU 1 completed Process: 2
CPU 1 executing Process: 6
CPU 3 completed Process: 3
CPU 3 executing Process: 7
Generated Process: 16 at 1738339021147
Generated Process: 17 at 1738339021147
Generated Process: 18 at 1738339021147
Generated Process: 19 at 1738339021147
Generated Process: 20 at 1738339021147
CPU 1 completed Process: 6
CPU 1 executing Process: 8
Scheduled Process: 16
Scheduled Process: 17
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
CPU 2 completed Process: 5
CPU 2 executing Process: 9
Generated Process: 21 at 1738339022162
Generated Process: 22 at 1738339022162
Generated Process: 23 at 1738339022162
Generated Process: 24 at 1738339022162
Generated Process: 25 at 1738339022162
Generated Process: 26 at 1738339022162
Generated Process: 27 at 1738339022162
Generated Process: 28 at 1738339022162
All files are up-to-date (a minute ago)
```

The screenshot displays two instances of a Java IDE (IntelliJ IDEA) showing the execution of a project named "OSProject".

Top Window (OSProject.java):

```
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
OS src OSProject main
Project Run OSProject x
Run: OSProject x
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
Scheduled Process: 25
Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
CPU 2 completed Process: 9
CPU 2 executing Process: 10
CPU 3 completed Process: 7
CPU 3 executing Process: 11
CPU 1 completed Process: 8
CPU 1 executing Process: 12
Generated Process: 30 at 1738339023166
Generated Process: 31 at 1738339023166
Generated Process: 32 at 1738339023166
Generated Process: 33 at 1738339023166
Generated Process: 34 at 1738339023166
CPU 2 completed Process: 10
CPU 2 executing Process: 13
Scheduled Process: 30
Scheduled Process: 31
Scheduled Process: 32
Scheduled Process: 33
Replaced Process 26 with Process 34
CPU 1 completed Process: 12
CPU 1 executing Process: 14
CPU 2 completed Process: 13
CPU 2 executing Process: 15
```

Bottom Window (OSProject.java):

```
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
OS src OSProject main
Project Run OSProject x
Run: OSProject x
Generated Process: 35 at 1738339024174
Generated Process: 36 at 1738339024174
Generated Process: 37 at 1738339024174
Generated Process: 38 at 1738339024174
Generated Process: 39 at 1738339024174
Generated Process: 40 at 1738339024174
Generated Process: 41 at 1738339024174
Generated Process: 42 at 1738339024174
Generated Process: 43 at 1738339024174
Generated Process: 44 at 1738339024174
Scheduled Process: 35
Scheduled Process: 36
Scheduled Process: 37
Replaced Process 35 with Process 38
Replaced Process 31 with Process 39
Replaced Process 34 with Process 40
Replaced Process 32 with Process 41
Replaced Process 33 with Process 42
Replaced Process 37 with Process 44
CPU 2 completed Process: 15
CPU 2 executing Process: 17
Scheduled Process: 43
Generated Process: 45 at 1738339025180
Generated Process: 46 at 1738339025180
Generated Process: 47 at 1738339025180
Generated Process: 48 at 1738339025180
Generated Process: 49 at 1738339025180
Generated Process: 50 at 1738339025180
CPU 1 completed Process: 14
CPU 1 executing Process: 18
```

Both windows show the status bar indicating "All files are up-to-date (a minute ago)". The bottom window also shows the system tray with icons for battery, signal, and date/time (7:27 PM, 1/31/2025).

The screenshot shows two instances of a Java IDE (IntelliJ IDEA) running on a Windows operating system. Both windows display the same code and output, indicating a comparison or a side-by-side view of the application's execution.

Top Window (Left):

- File:** OSProject > main
- Run:** OSProject
- Output:**

```
↑ Replaced Process 48 with Process 49
CPU 3 completed Process: 16
CPU 3 executing Process: 19
Scheduled Process: 46
Replaced Process 46 with Process 47
Replaced Process 47 with Process 58
Generated Process: 51 at 1738339826186
Generated Process: 52 at 1738339826186
Generated Process: 53 at 1738339826186
Generated Process: 54 at 1738339826186
Generated Process: 55 at 1738339826186
Generated Process: 56 at 1738339826186
Generated Process: 57 at 1738339826186
Generated Process: 58 at 1738339826186
Replaced Process 50 with Process 51
Replaced Process 49 with Process 52
Replaced Process 52 with Process 53
Replaced Process 53 with Process 54
Replaced Process 28 with Process 55
Replaced Process 54 with Process 56
Replaced Process 29 with Process 58
CPU 2 completed Process: 17
CPU 2 executing Process: 20
Scheduled Process: 57
CPU 3 completed Process: 19
CPU 3 executing Process: 21
CPU 1 completed Process: 18
CPU 1 executing Process: 22
Generated Process: 59 at 1738339827193
Generated Process: 60 at 1738339827193
```
- Bottom Status Bar:** All files are up-to-date (a minute ago)
- Icons:** Git, Run, Profiler, Build, TODO, Problems, Terminal, Services
- Right Panel:** Externally added files can be added to Git (View Files, Always Add, Don't Ask Again)

Bottom Window (Right):

- File:** OSProject > main
- Run:** OSProject
- Output:**

```
↑ CPU 3 executing Process: 21
CPU 1 completed Process: 18
CPU 1 executing Process: 22
Generated Process: 59 at 1738339827193
Generated Process: 60 at 1738339827193
Generated Process: 61 at 1738339827193
Generated Process: 62 at 1738339827193
Generated Process: 63 at 1738339827193
Generated Process: 64 at 1738339827193
CPU 3 completed Process: 21
CPU 3 executing Process: 23
CPU 1 completed Process: 22
CPU 1 executing Process: 24
Scheduled Process: 59
Scheduled Process: 60
Scheduled Process: 61
Scheduled Process: 62
Replaced Process 57 with Process 63
Replaced Process 25 with Process 64
CPU 2 completed Process: 20
CPU 2 executing Process: 27
CPU 1 completed Process: 24
CPU 1 executing Process: 30
CPU 2 completed Process: 27
CPU 2 executing Process: 36
Simulation ended.
Final System Score: 1530

Process finished with exit code 0
```
- Bottom Status Bar:** All files are up-to-date (a minute ago)
- Icons:** Git, Run, Profiler, Build, TODO, Problems, Terminal, Services
- Right Panel:** Externally added files can be added to Git (View Files, Always Add, Don't Ask Again)

```
"C:\Program Files\Java\jdk-17\bin\java.exe" "-javaagent:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2\lib\idea_rt.jar=14525:C:\Program Files\JetBrains\IntelliJ IDEA 2022.3.2"
Generated Process: 1 at 1738339281993
Generated Process: 2 at 1738339281993
Generated Process: 3 at 1738339281993
Generated Process: 4 at 1738339281993
Generated Process: 5 at 1738339281993
Generated Process: 6 at 1738339281993
Generated Process: 7 at 1738339281993
Generated Process: 8 at 1738339281993
Generated Process: 9 at 1738339281993
Generated Process: 10 at 1738339281993
Scheduled Process: 1
Scheduled Process: 2
Scheduled Process: 3
Scheduled Process: 4
Scheduled Process: 5
Scheduled Process: 6
Scheduled Process: 7
Scheduled Process: 8
Scheduled Process: 9
Scheduled Process: 10
CPU 1 executing Process: 3
CPU 3 executing Process: 1
CPU 2 executing Process: 2
CPU 1 completed Process: 3
CPU 1 executing Process: 4
Generated Process: 11 at 1738339283007
Generated Process: 12 at 1738339283007
Generated Process: 13 at 1738339283007
Generated Process: 14 at 1738339283007
```



```
Scheduled Process: 14
Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
CPU 3 completed Process: 1
CPU 3 executing Process: 5
CPU 1 completed Process: 4
CPU 1 executing Process: 6
CPU 2 completed Process: 2
CPU 2 executing Process: 7
CPU 1 completed Process: 6
CPU 1 executing Process: 8
Generated Process: 18 at 1738339284011
Generated Process: 19 at 1738339284011
Generated Process: 20 at 1738339284011
Generated Process: 21 at 1738339284011
Generated Process: 22 at 1738339284011
Generated Process: 23 at 1738339284011
Generated Process: 24 at 1738339284011
Generated Process: 25 at 1738339284011
CPU 3 completed Process: 5
CPU 3 executing Process: 9
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
Scheduled Process: 25
```

The screenshot shows three separate windows of a Java IDE (likely IntelliJ IDEA) running the same application. Each window displays a log of process events:

```
OS > src > OSProject > main
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
Project Run OSProject x
Run: OSProject x
Scheduled Process: 24
Scheduled Process: 25
CPU 3 completed Process: 9
CPU 3 executing Process: 10
CPU 1 completed Process: 8
CPU 1 executing Process: 11
Generated Process: 26 at 1738339205016
Generated Process: 27 at 1738339205016
Generated Process: 28 at 1738339205016
Generated Process: 29 at 1738339205016
Generated Process: 30 at 1738339205016
Generated Process: 31 at 1738339205016
Generated Process: 32 at 1738339205016
Generated Process: 33 at 1738339205016
Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Replaced Process 16 with Process 32
Replaced Process 27 with Process 33
CPU 2 completed Process: 7
CPU 2 executing Process: 12
CPU 1 completed Process: 11
CPU 1 executing Process: 13
CPU 3 completed Process: 10
CPU 3 executing Process: 14
CPU 1 completed Process: 13
CPU 1 executing Process: 15

Git Run Profiler Build TODO Problems Terminal Services
All files are up-to-date (a minute ago)
Windows Search Home OS.java - OSProject.java... دن باتونو گاراچک ای سوس... 2°C Mostly cloudy 7:30 PM 1/31/2025
```

```
OS > src > OSProject > main
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
Project Run OSProject x
Run: OSProject x
CPU 1 completed Process: 13
CPU 1 executing Process: 15
CPU 3 completed Process: 14
CPU 3 executing Process: 17
Generated Process: 34 at 1738339206028
Generated Process: 35 at 1738339206028
Generated Process: 36 at 1738339206028
Generated Process: 37 at 1738339206028
Generated Process: 38 at 1738339206028
Generated Process: 39 at 1738339206028
Generated Process: 40 at 1738339206028
Generated Process: 41 at 1738339206028
Scheduled Process: 34
Scheduled Process: 35
Scheduled Process: 36
Scheduled Process: 37
Scheduled Process: 38
Replaced Process 34 with Process 39
Replaced Process 21 with Process 40
Replaced Process 20 with Process 41
CPU 3 completed Process: 17
CPU 3 executing Process: 18
CPU 2 completed Process: 12
CPU 2 executing Process: 19
CPU 1 completed Process: 15
CPU 1 executing Process: 22
Generated Process: 42 at 1738339207030
Generated Process: 43 at 1738339207030
Generated Process: 44 at 1738339207030
Generated Process: 45 at 1738339207030

Git Run Profiler Build TODO Problems Terminal Services
All files are up-to-date (a minute ago)
Windows Search Home OS.java - OSProject.java... دن باتونو گاراچک ای سوس... 2°C Mostly cloudy 7:30 PM 1/31/2025
```

```
OS > src > OSProject > main
File Edit View Navigate Code Refactor Build Run Tools Git Window Help OS.java - OSProject.java
Project Run OSProject x
Run: OSProject x
CPU 1 completed Process: 24
CPU 1 executing Process: 25
CPU 3 completed Process: 9
CPU 3 executing Process: 10
CPU 1 completed Process: 8
CPU 1 executing Process: 11
Generated Process: 26 at 1738339205016
Generated Process: 27 at 1738339205016
Generated Process: 28 at 1738339205016
Generated Process: 29 at 1738339205016
Generated Process: 30 at 1738339205016
Generated Process: 31 at 1738339205016
Generated Process: 32 at 1738339205016
Generated Process: 33 at 1738339205016
Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
Scheduled Process: 30
Scheduled Process: 31
Replaced Process 16 with Process 32
Replaced Process 27 with Process 33
CPU 2 completed Process: 7
CPU 2 executing Process: 12
CPU 1 completed Process: 11
CPU 1 executing Process: 13
CPU 3 completed Process: 10
CPU 3 executing Process: 14
CPU 1 completed Process: 13
CPU 1 executing Process: 15

Git Run Profiler Build TODO Problems Terminal Services
All files are up-to-date (a minute ago)
Windows Search Home OS.java - OSProject.java... دن باتونو گاراچک ای سوس... 2°C Mostly cloudy 7:30 PM 1/31/2025
```

The image shows two side-by-side terminal windows from a Java IDE, likely IntelliJ IDEA, running on a Windows operating system. Both terminals are titled 'OSProject' and show the same log output, which is a sequence of generated processes and their execution details.

```
Generated Process: 48 at 1738339207030
Generated Process: 49 at 1738339207030
Generated Process: 50 at 1738339207030
Generated Process: 51 at 1738339207030
Scheduled Process: 42
Scheduled Process: 43
Scheduled Process: 44
Replaced Process 44 with Process 45
Replaced Process 42 with Process 47
Replaced Process 45 with Process 48
Replaced Process 38 with Process 49
Replaced Process 33 with Process 50
Replaced Process 50 with Process 51
Generated Process: 52 at 1738339208033
Generated Process: 53 at 1738339208033
Generated Process: 54 at 1738339208033
Generated Process: 55 at 1738339208033
Generated Process: 56 at 1738339208033
Generated Process: 57 at 1738339208033
Generated Process: 58 at 1738339208033
Generated Process: 59 at 1738339208033
Generated Process: 60 at 1738339208033
Generated Process: 61 at 1738339208033
CPU 2 completed Process: 19
CPU 2 executing Process: 23
CPU 3 completed Process: 18
CPU 3 executing Process: 24
Scheduled Process: 46
Scheduled Process: 52
Replaced Process 46 with Process 53
```

Below the first terminal window, the status bar indicates: 'All files are up-to-date (a minute ago)'. The bottom right corner of the screen shows the date and time as '1/31/2025 7:30 PM' and the weather as '2°C Mostly cloudy'.


```
Replaced Process 39 with Process 60
CPU 2 completed Process: 23
CPU 2 executing Process: 25
Scheduled Process: 61
CPU 1 completed Process: 22
CPU 1 executing Process: 26
Generated Process: 62 at 1738339209045
Generated Process: 63 at 1738339209045
Generated Process: 64 at 1738339209045
Generated Process: 65 at 1738339209045
Generated Process: 66 at 1738339209045
Generated Process: 67 at 1738339209045
Scheduled Process: 62
Replaced Process 61 with Process 63
Replaced Process 62 with Process 65
Replaced Process 63 with Process 66
CPU 2 completed Process: 25
CPU 2 executing Process: 28
Scheduled Process: 64
Replaced Process 64 with Process 67
Generated Process: 68 at 1738339210049
Generated Process: 69 at 1738339210049
Generated Process: 70 at 1738339210049
Generated Process: 71 at 1738339210049
Generated Process: 72 at 1738339210049
Generated Process: 73 at 1738339210049
Generated Process: 74 at 1738339210049
Generated Process: 75 at 1738339210049
Replaced Process 67 with Process 70
Replaced Process 70 with Process 74
```

Below the second terminal window, the status bar indicates: 'All files are up-to-date (a minute ago)'. The bottom right corner of the screen shows the date and time as '1/31/2025 7:30 PM' and the weather as '2°C Mostly cloudy'.

```
CPU 2 executing Process: 28
Scheduled Process: 64
Replaced Process 64 with Process 67
Generated Process: 68 at 1738339210849
Generated Process: 69 at 1738339210849
Generated Process: 70 at 1738339210849
Generated Process: 71 at 1738339210849
Generated Process: 72 at 1738339210849
Generated Process: 73 at 1738339210849
Generated Process: 74 at 1738339210849
Generated Process: 75 at 1738339210849
Replaced Process 67 with Process 70
Replaced Process 70 with Process 74
Replaced Process 65 with Process 75
CPU 3 completed Process: 24
CPU 3 executing Process: 29
CPU 2 completed Process: 28
CPU 2 executing Process: 32
CPU 1 completed Process: 26
CPU 1 executing Process: 35
Scheduled Process: 68
Scheduled Process: 69
Replaced Process 69 with Process 72
Replaced Process 72 with Process 73
Simulation ended.
Final System Score: 1263

Process finished with exit code 0
```

```
Scheduled Process: 3
Scheduled Process: 4
CPU 1 executing Process: 3
Scheduled Process: 5
Scheduled Process: 6
Scheduled Process: 7
CPU 3 completed Process: 1
CPU 3 executing Process: 4
CPU 2 completed Process: 2
CPU 2 executing Process: 5
CPU 3 completed Process: 4
CPU 3 executing Process: 6
Generated Process: 8 at 1738339337099
Generated Process: 9 at 1738339337099
Generated Process: 10 at 1738339337099
Generated Process: 11 at 1738339337099
Generated Process: 12 at 1738339337099
Scheduled Process: 8
Scheduled Process: 9
Scheduled Process: 10
Scheduled Process: 11
Scheduled Process: 12
CPU 3 completed Process: 6
CPU 3 executing Process: 7
CPU 1 completed Process: 3
CPU 1 executing Process: 8
Generated Process: 13 at 1738339338103
Generated Process: 14 at 1738339338103
Generated Process: 15 at 1738339338103
Generated Process: 16 at 1738339338103

Process finished with exit code 0
```

```
CPU 3 executing Process: 9
Scheduled Process: 13
Scheduled Process: 14
Scheduled Process: 15
Scheduled Process: 16
Scheduled Process: 17
CPU 2 completed Process: 5
CPU 2 executing Process: 10
CPU 3 completed Process: 9
CPU 3 executing Process: 11
Generated Process: 18 at 1738339339118
Generated Process: 19 at 1738339339118
Generated Process: 20 at 1738339339118
Generated Process: 21 at 1738339339118
Generated Process: 22 at 1738339339118
Generated Process: 23 at 1738339339118
Generated Process: 24 at 1738339339118
Scheduled Process: 18
Scheduled Process: 19
Scheduled Process: 20
Scheduled Process: 21
Scheduled Process: 22
Scheduled Process: 23
Scheduled Process: 24
CPU 1 completed Process: 8
CPU 1 executing Process: 12
CPU 3 completed Process: 11
CPU 3 executing Process: 13
Generated Process: 25 at 1738339340123
Generated Process: 26 at 1738339340123

Generated Process: 29 at 1738339340123
Scheduled Process: 25
Scheduled Process: 26
Scheduled Process: 27
Scheduled Process: 28
Scheduled Process: 29
CPU 3 completed Process: 13
CPU 3 executing Process: 14
CPU 1 completed Process: 12
CPU 1 executing Process: 15
CPU 2 completed Process: 10
CPU 2 executing Process: 16
CPU 3 completed Process: 14
CPU 3 executing Process: 17
Generated Process: 30 at 1738339341133
Generated Process: 31 at 1738339341133
Generated Process: 32 at 1738339341133
Generated Process: 33 at 1738339341133
Generated Process: 34 at 1738339341133
Generated Process: 35 at 1738339341133
Generated Process: 36 at 1738339341133
Generated Process: 37 at 1738339341133
Generated Process: 38 at 1738339341133
Generated Process: 39 at 1738339341133
Scheduled Process: 30
Scheduled Process: 31
Scheduled Process: 32
Scheduled Process: 33
Scheduled Process: 34
Scheduled Process: 35
```

The screenshot shows a Java IDE interface with a terminal window displaying the output of a scheduler application. The logs show the generation of processes, their execution on three CPUs, and the replacement of processes due to scheduling decisions.

```
Generated Process: 40 at 1738339342135
Generated Process: 41 at 1738339342135
Generated Process: 42 at 1738339342135
Generated Process: 43 at 1738339342135
Generated Process: 44 at 1738339342135
Generated Process: 45 at 1738339342135
Generated Process: 46 at 1738339342135
Generated Process: 47 at 1738339342135
Generated Process: 48 at 1738339342135
Generated Process: 49 at 1738339342135
CPU 3 completed Process: 17
CPU 3 executing Process: 19
Scheduled Process: 40
Scheduled Process: 41
Replaced Process 27 with Process 42
Replaced Process 24 with Process 43
Replaced Process 36 with Process 44
Replaced Process 30 with Process 45
Replaced Process 40 with Process 46
Replaced Process 43 with Process 48
CPU 1 completed Process: 18
CPU 1 executing Process: 20
CPU 2 completed Process: 16
CPU 2 executing Process: 21
Scheduled Process: 47
Scheduled Process: 49
CPU 3 completed Process: 19
CPU 3 executing Process: 22
Generated Process: 50 at 1738339343149
Generated Process: 51 at 1738339343149
```

```
CPU 3 executing Process: 22
Generated Process: 50 at 1738339343149
Generated Process: 51 at 1738339343149
Generated Process: 52 at 1738339343149
Generated Process: 53 at 1738339343149
Generated Process: 54 at 1738339343149
Generated Process: 55 at 1738339343149
Generated Process: 56 at 1738339343149
Generated Process: 57 at 1738339343149
Scheduled Process: 50
Replaced Process 47 with Process 51
Replaced Process 49 with Process 53
Replaced Process 50 with Process 54
Replaced Process 51 with Process 56
Replaced Process 45 with Process 57
CPU 1 completed Process: 20
CPU 1 executing Process: 25
Scheduled Process: 52
Replaced Process 52 with Process 55
Generated Process: 58 at 1738339344155
Generated Process: 59 at 1738339344155
Generated Process: 60 at 1738339344155
Generated Process: 61 at 1738339344155
Generated Process: 62 at 1738339344155
Generated Process: 63 at 1738339344155
Generated Process: 64 at 1738339344155
Generated Process: 65 at 1738339344155
Generated Process: 66 at 1738339344155
CPU 1 completed Process: 25
CPU 1 executing Process: 26
Replaced Process 55 with Process 58
Scheduled Process: 59
Replaced Process 35 with Process 60
Replaced Process 60 with Process 61
Replaced Process 41 with Process 64
CPU 2 completed Process: 21
CPU 2 executing Process: 28
CPU 1 completed Process: 26
CPU 1 executing Process: 29
Scheduled Process: 62
Scheduled Process: 63
Replaced Process 63 with Process 65
CPU 3 completed Process: 22
CPU 3 executing Process: 31
Scheduled Process: 66
Simulation ended.
Final System Score: 1384

Process finished with exit code 0
```

```
Generated Process: 59 at 1738339344155
Generated Process: 60 at 1738339344155
Generated Process: 61 at 1738339344155
Generated Process: 62 at 1738339344155
Generated Process: 63 at 1738339344155
Generated Process: 64 at 1738339344155
Generated Process: 65 at 1738339344155
Generated Process: 66 at 1738339344155
CPU 1 completed Process: 25
CPU 1 executing Process: 26
Replaced Process 55 with Process 58
Scheduled Process: 59
Replaced Process 35 with Process 60
Replaced Process 60 with Process 61
Replaced Process 41 with Process 64
CPU 2 completed Process: 21
CPU 2 executing Process: 28
CPU 1 completed Process: 26
CPU 1 executing Process: 29
Scheduled Process: 62
Scheduled Process: 63
Replaced Process 63 with Process 65
CPU 3 completed Process: 22
CPU 3 executing Process: 31
Scheduled Process: 66
Simulation ended.
Final System Score: 1384

Process finished with exit code 0
```