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5/23/2014

CS 3240

**Program #2**

// bank.cpp

#include <fstream>

#include <iomanip>

#include <iostream>

#include <new>

#include <stdlib.h>

#include <string.h>

using namespace std;

struct cust {

int cusn; // customer number

int entr; // when entered

int jtim; // time needed by clerk to do customer's job

cust \*link;

} \*custh; // pointer to head node

struct evnt {

int time; // cust enters, or clerk done

int what; // 1 customer enters ; 2 clerk finishes job

int whom; // 1 customer ; 2 clerk

int data; // 1 customer # ; 2 clerk #

evnt \*link;

} \*evnth; // pointer to head node

struct idlq {

int clrk; // which clerk

int time; // when began idle

idlq \*link;

} \*idlqh; // pointer to head node

struct waitq {

int custn; // customer #

int entr; // when entered

int jtim; // time needed by clerk to do customer's job

waitq \*link;

} \*waitqh, \*waitqt; // pointer to head and tail nodes

int const infinity = 2147483647; // 2^(31)-1

int \*idle, maxwait, minwait, now, totwait;

int main(int argc, char \*\*argv)

{

void newerr();

void readjobs(char \*, int &);

void simul(int, int, int, int);

void stats(int, int);

cust \*p, \*q;

int i, m, m0, m1, n, v=0; // m: # of clerks, n: # of customer

if ((argc < 4) || (5 < argc)) {

// [] optional ; nclerk0 min# of clerk ; nclerk1 max# of clerk ; file name of new file to create

cout << "\*\* use is >bank [-v] nclerk0 nclerk1 file \*\*\n";

exit(1);

}

set\_new\_handler(newerr);

if ( strcmp( \*++argv,"-v") == 0 ) {

v++; // first string is "bank" so increment to see if in verbose mode (this is the next string), if 0 then in verbose mode.

} else {

--argv; // not in verbose so go back to the first argument

}

m0 = atoi(\*++argv); // min# of clerks; ascii to char

m1 = atoi(\*++argv); // max# of clerks; ascii to char

if ( (m0 < 1) || (m1 < m0) ) { // if no clerk or max < min then error

cout << "\*\* bad nclerk0 and/or nclerk1 \*\*\n";

exit(1);

}

idle = new int[m1]; // total of time for clerk prior to current break

readjobs(\*++argv, n); // n is passed by reference

cout.setf(ios::fixed, ios::floatfield);

cout.setf(ios::showpoint);

for (m = m0; m <= m1; m++) {

cout << setw(3) << m << " clerk" << (m < 2 ? "" : "s") << " --\n";

for (i = 0; i < 2; i++) {

simul(i, v, n, m);

cout << (i == 0 ? "FCFC:" : " SJF:") << " finish at " << now << '\n';

stats(n, m); // n customers ; m clerks

}

cout << '\n';

}

for (p = custh; p != (cust \*)0; ) {

q = p->link;

delete p;

p = q;

}

delete [] idle;

return 0;

}

void

addevnt(evnt \*pevnt) {

evnt \*p, \*q;

if ( evnth == (evnt \*)0 ) { // if events are empty, make this the head

evnth = pevnt;

pevnt->link = (evnt \*)0;

} else {

p = (evnt \*)0;

q = evnth;

while (q != (evnt \*)0) {

if ( q->time <= pevnt->time){ // add to tail

p = q;

q = q->link;

} else {

pevnt->link = q;

if (p == (evnt \*)0) // add to head

evnth = pevnt;

else

p->link = pevnt;

break;

}

}

if ( q == (evnt \*)0 ) {

p->link = pevnt;

pevnt->link = (evnt \*)0;

}

}

}

void getcust(int clrk) { // make a new node and put it in the right place of the list

void addevnt(evnt \*);

evnt \*pevnt;

waitq \*q;

int wait;

pevnt = new evnt;

pevnt->time = now + waitqh->jtim;

pevnt->what = 2;

pevnt->whom = clrk;

pevnt->data = waitqh->custn;

addevnt(pevnt);

wait = now - waitqh->entr;

if (wait < minwait)

minwait = wait;

totwait += (unsigned int)wait;

if (maxwait < wait)

maxwait = wait;

q = waitqh;

waitqh = waitqh->link;

delete q;

if (waitqh == (waitq \*)0)

waitqt = (waitq \*)0;

}

void

init(int n, int m) {

cust \*pcust;

evnt \*pevnt, \*q = nullptr;

idlq \*pidlq, \*r = nullptr;

int i;

for (i = 0; i < m; ) { // all clerks start with zero idle time

idle[i] = 0;

pidlq = new idlq;

pidlq->clrk = ++i;

pidlq->time = 0;

if (i == 1)

idlqh = pidlq;

else

r->link = pidlq;

r = pidlq;

}

r->link = (idlq \*)0;

waitqh = waitqt = (waitq \*)0;

totwait = 0;

now = maxwait = 0;

minwait = infinity;

pcust = custh;

for (i = 0; i < n ; ) { // for n customers, make list of event nodes and transfer data

pevnt = new evnt;

pevnt->time = pcust->entr;

pevnt->what = 1;

pevnt->whom = ++i;

pevnt->data = pcust->jtim;

if (i == 1) // first event becomes head node

evnth = pevnt;

else

q->link = pevnt; // this node becomes link in last node

q = pevnt;

pcust = pcust->link;

}

q->link = (evnt \*)0;

}

void

newerr() {

cout << "\*\* new has failed \*\*\n";

exit(1);

}

void

readjobs(char \*fname, int & n) { // name of file is passed by reference, # of customers

ifstream file;

struct {

unsigned short int entr;

unsigned short int jtim;

} rec;

cust \*pcust, \*q = nullptr; // pointer to cust node

file.open(fname, ios::in | ios::binary);

if ( file.fail() ) {

cout << "\*\* readjobs: can't open\"" << fname << "\" \*\*\n";

exit(1);

} else {

cout << "\t\t\tbank: data file is \"" << fname << "\"\n";

n = 0;

}

while ( file.read( (char \*)&rec, sizeof(rec) ) ) { // read job file into ram

n++;

pcust = new cust;

pcust->entr = rec.entr;

pcust->jtim = rec.jtim;

if ( n == 1)

custh = pcust;

else

q->link = pcust;

q = pcust;

}

file.close(); // nothing left to read so close the file

q->link = (cust \*)0;

}

void

simul(int mode, int v, int n, int m) { // mode: 1 FCFS , 2 SJF

void getcust(int), init(int, int), showevnt(), toclrk(int, int), toidlq(int), towaitq(int, int, int);

evnt \*q = new evnt; // pointer to event

int data, what, whom;

init(n, m); // n customers, m clerk

while ( evnth != (evnt \*)0 ) { // while there is an event

now = evnth->time;

what = evnth->what;

whom = evnth->whom;

data = evnth->data;

q = evnth;

evnth = evnth->link;

delete q;

if ( v ) // in verbose mode?

cout << setw(8) << now << ':';

if ( what == 1 ) { // customer enters

if ( v )

cout << " customer" << setw(5) << whom << " enters; ";

if ( idlqh == (idlq \*)0 ) {

if ( v )

cout << "to wait queue\n";

towaitq(mode, whom, data);

} else {

if ( v )

cout << "to clerk" << setw(4) << idlqh->clrk << '\n';

toclrk(whom, data);

}

} else { // clerk finishes with a customer

if ( v )

cout << " clerk" << setw(5) << whom << " is done with customer" << setw(5) << data << "; ";

if ( waitqh == (waitq \*)0 ) {

if ( v )

cout << "to idle queue\n";

toidlq(whom);

} else {

if ( v )

cout << "gets customer " << setw(5) << waitqh->custn << '\n';

getcust(whom);

}

}

}

}

void

stats(int n, int m) {

idlq \*p = new idlq;

int i, maxidle = 0, minidle = 0, totidle;

for ( ; idlqh != (idlq \*)0 ; ) {

idle[idlqh->clrk-1] += now - idlqh->time;

p = idlqh;

idlqh = idlqh->link;

delete p;

}

for ( i = 0 ; i < m ; i++ ) {

if ( idle[i] < minidle )

minidle = idle[i];

totidle += (unsigned int)idle[i];

if ( maxidle < idle[i] )

maxidle = idle[i];

}

cout << "minwait =" << setw(6) << minwait << " meanwait =" << setw(12) << setprecision(4) << (double)totwait/(double)n << " maxwait =" << setw(6) << maxwait << "\nminidle =" << setw(6) << minidle << " meanidle =" << setw(12) << setprecision(4) << (double)totidle/(double)m << " maxidle =" << setw(6) << maxidle << '\n';

}

void

toclrk(int cusn, int jtim) {

void addevnt(evnt \*);

evnt \*p;

idlq \*q;

int clrk;

clrk = idlqh->clrk;

p = new evnt;

p->time = now + jtim;

p->what = 2;

p->whom = clrk;

p->data = cusn;

idle[clrk-1] += now - idlqh->time; // clerk's current break plus idle clerk's total breaks

q = idlqh;

idlqh = idlqh->link;

delete q;

addevnt(p);

minwait = 0;

}

void

toidlq(int clrk) {

idlq \*p, \*pidlq, \*q;

pidlq = new idlq;

pidlq->clrk = clrk;

pidlq->time = now;

if ( idlqh == (idlq \*)0 ) {

pidlq->link = (idlq \*)0;

idlqh = pidlq;

} else {

//p = q = new idlq;

p = (idlq \*)0;

q = idlqh;

while ( q != (idlq \*)0 ) {

if ( idle[clrk-1] <= idle[q->clrk-1] + now - q->time ) {

p = q;

q = q->link;

} else {

if ( p == (idlq \*)0 ) {

idlqh = pidlq;

idlqh->link = q;

} else {

p->link = pidlq;

pidlq->link = q;

}

break;

}

}

if ( q == (idlq \*)0 ) {

p->link = pidlq;

pidlq->link = (idlq \*)0;

}

}

}

void

towaitq(int mode, int cusn, int jtim) {

waitq \*p, \*pwaitq, \*q;

pwaitq = new waitq;

pwaitq->custn = cusn;

pwaitq->entr = now;

pwaitq->jtim = jtim;

if ( waitqt == (waitq \*)0 ) { // if wait is zero then this is the head and tail

waitqh = waitqt = pwaitq;

waitqt->link = (waitq \*)0;

} else {

if ( mode == 0 ) { // FCFS - new guy goes to the end of queue

waitqt->link = pwaitq;

waitqt = pwaitq;

waitqt->link = (waitq \*)0;

} else { // SJF

p = (waitq \*)0;

q = waitqh;

while ( q != (waitq \*)0 ) {

if ( q->jtim <= jtim ) {

p = q;

q = q->link;

} else {

pwaitq->link = q;

if ( p == (waitq \*)0 )

waitqh = pwaitq;

else

p->link = pwaitq;

break;

}

}

if ( q == (waitq \*)0 ) {

waitqt->link = pwaitq;

pwaitq->link = (waitq \*)0;

waitqt = pwaitq;

}

}

}

}

**Results**

mmac:cs3240 mlmartinez85$ g++ bank.cpp -o bank

mmac:cs3240 mlmartinez85$ ./bank -v 1 3 jobs00

bank: data file is "jobs00"

1 clerk --

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 1

14: customer 3 enters; to wait queue

15: customer 4 enters; to wait queue

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 1 is done with customer 2; gets customer 3

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

26: customer 10 enters; to wait queue

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

30: customer 13 enters; to wait queue

31: clerk 1 is done with customer 3; gets customer 4

34: customer 14 enters; to wait queue

40: customer 15 enters; to wait queue

44: clerk 1 is done with customer 4; gets customer 5

45: customer 16 enters; to wait queue

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

53: customer 19 enters; to wait queue

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

58: customer 22 enters; to wait queue

60: customer 23 enters; to wait queue

60: clerk 1 is done with customer 5; gets customer 6

61: customer 24 enters; to wait queue

65: customer 25 enters; to wait queue

71: clerk 1 is done with customer 6; gets customer 7

75: customer 26 enters; to wait queue

79: customer 27 enters; to wait queue

81: customer 28 enters; to wait queue

85: customer 29 enters; to wait queue

88: customer 30 enters; to wait queue

88: clerk 1 is done with customer 7; gets customer 8

89: customer 31 enters; to wait queue

90: customer 32 enters; to wait queue

95: customer 33 enters; to wait queue

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

96: clerk 1 is done with customer 8; gets customer 9

97: clerk 1 is done with customer 9; gets customer 10

101: customer 36 enters; to wait queue

106: customer 37 enters; to wait queue

108: customer 38 enters; to wait queue

109: clerk 1 is done with customer 10; gets customer 11

111: customer 39 enters; to wait queue

114: customer 40 enters; to wait queue

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

117: customer 44 enters; to wait queue

118: customer 45 enters; to wait queue

120: customer 46 enters; to wait queue

120: clerk 1 is done with customer 11; gets customer 12

123: customer 47 enters; to wait queue

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

125: customer 50 enters; to wait queue

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

130: clerk 1 is done with customer 12; gets customer 13

132: customer 53 enters; to wait queue

135: customer 54 enters; to wait queue

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

141: customer 57 enters; to wait queue

142: clerk 1 is done with customer 13; gets customer 14

146: customer 58 enters; to wait queue

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

149: customer 61 enters; to wait queue

155: customer 62 enters; to wait queue

155: clerk 1 is done with customer 14; gets customer 15

157: customer 63 enters; to wait queue

159: customer 64 enters; to wait queue

160: customer 65 enters; to wait queue

162: customer 66 enters; to wait queue

162: clerk 1 is done with customer 15; gets customer 16

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

169: customer 70 enters; to wait queue

173: customer 71 enters; to wait queue

176: clerk 1 is done with customer 16; gets customer 17

177: customer 72 enters; to wait queue

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

180: customer 75 enters; to wait queue

182: customer 76 enters; to wait queue

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

187: customer 81 enters; to wait queue

189: clerk 1 is done with customer 17; gets customer 18

192: customer 82 enters; to wait queue

193: customer 83 enters; to wait queue

195: customer 84 enters; to wait queue

198: customer 85 enters; to wait queue

199: clerk 1 is done with customer 18; gets customer 19

200: customer 86 enters; to wait queue

203: customer 87 enters; to wait queue

204: customer 88 enters; to wait queue

207: customer 89 enters; to wait queue

209: clerk 1 is done with customer 19; gets customer 20

212: customer 90 enters; to wait queue

214: clerk 1 is done with customer 20; gets customer 21

215: customer 91 enters; to wait queue

222: customer 92 enters; to wait queue

224: customer 93 enters; to wait queue

225: clerk 1 is done with customer 21; gets customer 22

226: customer 94 enters; to wait queue

229: customer 95 enters; to wait queue

232: customer 96 enters; to wait queue

234: customer 97 enters; to wait queue

235: customer 98 enters; to wait queue

236: clerk 1 is done with customer 22; gets customer 23

237: customer 99 enters; to wait queue

238: customer 100 enters; to wait queue

246: clerk 1 is done with customer 23; gets customer 24

250: clerk 1 is done with customer 24; gets customer 25

256: clerk 1 is done with customer 25; gets customer 26

261: clerk 1 is done with customer 26; gets customer 27

263: clerk 1 is done with customer 27; gets customer 28

271: clerk 1 is done with customer 28; gets customer 29

272: clerk 1 is done with customer 29; gets customer 30

281: clerk 1 is done with customer 30; gets customer 31

284: clerk 1 is done with customer 31; gets customer 32

294: clerk 1 is done with customer 32; gets customer 33

311: clerk 1 is done with customer 33; gets customer 34

325: clerk 1 is done with customer 34; gets customer 35

331: clerk 1 is done with customer 35; gets customer 36

345: clerk 1 is done with customer 36; gets customer 37

347: clerk 1 is done with customer 37; gets customer 38

355: clerk 1 is done with customer 38; gets customer 39

357: clerk 1 is done with customer 39; gets customer 40

366: clerk 1 is done with customer 40; gets customer 41

372: clerk 1 is done with customer 41; gets customer 42

380: clerk 1 is done with customer 42; gets customer 43

384: clerk 1 is done with customer 43; gets customer 44

388: clerk 1 is done with customer 44; gets customer 45

392: clerk 1 is done with customer 45; gets customer 46

399: clerk 1 is done with customer 46; gets customer 47

405: clerk 1 is done with customer 47; gets customer 48

421: clerk 1 is done with customer 48; gets customer 49

423: clerk 1 is done with customer 49; gets customer 50

433: clerk 1 is done with customer 50; gets customer 51

440: clerk 1 is done with customer 51; gets customer 52

445: clerk 1 is done with customer 52; gets customer 53

448: clerk 1 is done with customer 53; gets customer 54

454: clerk 1 is done with customer 54; gets customer 55

457: clerk 1 is done with customer 55; gets customer 56

468: clerk 1 is done with customer 56; gets customer 57

469: clerk 1 is done with customer 57; gets customer 58

477: clerk 1 is done with customer 58; gets customer 59

478: clerk 1 is done with customer 59; gets customer 60

492: clerk 1 is done with customer 60; gets customer 61

502: clerk 1 is done with customer 61; gets customer 62

508: clerk 1 is done with customer 62; gets customer 63

510: clerk 1 is done with customer 63; gets customer 64

517: clerk 1 is done with customer 64; gets customer 65

520: clerk 1 is done with customer 65; gets customer 66

528: clerk 1 is done with customer 66; gets customer 67

532: clerk 1 is done with customer 67; gets customer 68

545: clerk 1 is done with customer 68; gets customer 69

553: clerk 1 is done with customer 69; gets customer 70

558: clerk 1 is done with customer 70; gets customer 71

564: clerk 1 is done with customer 71; gets customer 72

566: clerk 1 is done with customer 72; gets customer 73

583: clerk 1 is done with customer 73; gets customer 74

600: clerk 1 is done with customer 74; gets customer 75

602: clerk 1 is done with customer 75; gets customer 76

619: clerk 1 is done with customer 76; gets customer 77

622: clerk 1 is done with customer 77; gets customer 78

638: clerk 1 is done with customer 78; gets customer 79

647: clerk 1 is done with customer 79; gets customer 80

657: clerk 1 is done with customer 80; gets customer 81

669: clerk 1 is done with customer 81; gets customer 82

685: clerk 1 is done with customer 82; gets customer 83

702: clerk 1 is done with customer 83; gets customer 84

711: clerk 1 is done with customer 84; gets customer 85

724: clerk 1 is done with customer 85; gets customer 86

736: clerk 1 is done with customer 86; gets customer 87

751: clerk 1 is done with customer 87; gets customer 88

756: clerk 1 is done with customer 88; gets customer 89

759: clerk 1 is done with customer 89; gets customer 90

767: clerk 1 is done with customer 90; gets customer 91

784: clerk 1 is done with customer 91; gets customer 92

801: clerk 1 is done with customer 92; gets customer 93

807: clerk 1 is done with customer 93; gets customer 94

821: clerk 1 is done with customer 94; gets customer 95

834: clerk 1 is done with customer 95; gets customer 96

846: clerk 1 is done with customer 96; gets customer 97

850: clerk 1 is done with customer 97; gets customer 98

860: clerk 1 is done with customer 98; gets customer 99

866: clerk 1 is done with customer 99; gets customer 100

879: clerk 1 is done with customer 100; to idle queue

FCFC: finish at 879

minwait = 0 meanwait = 303.6800 maxwait = 628

minidle = 0 meanidle = 10.0000 maxidle = 9

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 1

14: customer 3 enters; to wait queue

15: customer 4 enters; to wait queue

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 1 is done with customer 2; gets customer 3

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

26: customer 10 enters; to wait queue

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

30: customer 13 enters; to wait queue

31: clerk 1 is done with customer 3; gets customer 9

32: clerk 1 is done with customer 9; gets customer 8

34: customer 14 enters; to wait queue

40: customer 15 enters; to wait queue

40: clerk 1 is done with customer 8; gets customer 15

45: customer 16 enters; to wait queue

47: clerk 1 is done with customer 15; gets customer 12

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

53: customer 19 enters; to wait queue

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

57: clerk 1 is done with customer 12; gets customer 20

58: customer 22 enters; to wait queue

60: customer 23 enters; to wait queue

61: customer 24 enters; to wait queue

62: clerk 1 is done with customer 20; gets customer 24

65: customer 25 enters; to wait queue

66: clerk 1 is done with customer 24; gets customer 25

72: clerk 1 is done with customer 25; gets customer 18

75: customer 26 enters; to wait queue

79: customer 27 enters; to wait queue

81: customer 28 enters; to wait queue

82: clerk 1 is done with customer 18; gets customer 27

84: clerk 1 is done with customer 27; gets customer 26

85: customer 29 enters; to wait queue

88: customer 30 enters; to wait queue

89: customer 31 enters; to wait queue

89: clerk 1 is done with customer 26; gets customer 29

90: customer 32 enters; to wait queue

90: clerk 1 is done with customer 29; gets customer 31

93: clerk 1 is done with customer 31; gets customer 28

95: customer 33 enters; to wait queue

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

101: customer 36 enters; to wait queue

101: clerk 1 is done with customer 28; gets customer 35

106: customer 37 enters; to wait queue

107: clerk 1 is done with customer 35; gets customer 37

108: customer 38 enters; to wait queue

109: clerk 1 is done with customer 37; gets customer 38

111: customer 39 enters; to wait queue

114: customer 40 enters; to wait queue

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

117: customer 44 enters; to wait queue

117: clerk 1 is done with customer 38; gets customer 39

118: customer 45 enters; to wait queue

119: clerk 1 is done with customer 39; gets customer 43

120: customer 46 enters; to wait queue

123: customer 47 enters; to wait queue

123: clerk 1 is done with customer 43; gets customer 44

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

125: customer 50 enters; to wait queue

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

127: clerk 1 is done with customer 44; gets customer 49

129: clerk 1 is done with customer 49; gets customer 45

132: customer 53 enters; to wait queue

133: clerk 1 is done with customer 45; gets customer 53

135: customer 54 enters; to wait queue

136: clerk 1 is done with customer 53; gets customer 52

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

141: customer 57 enters; to wait queue

141: clerk 1 is done with customer 52; gets customer 57

142: clerk 1 is done with customer 57; gets customer 55

145: clerk 1 is done with customer 55; gets customer 41

146: customer 58 enters; to wait queue

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

149: customer 61 enters; to wait queue

151: clerk 1 is done with customer 41; gets customer 59

152: clerk 1 is done with customer 59; gets customer 47

155: customer 62 enters; to wait queue

157: customer 63 enters; to wait queue

158: clerk 1 is done with customer 47; gets customer 63

159: customer 64 enters; to wait queue

160: customer 65 enters; to wait queue

160: clerk 1 is done with customer 63; gets customer 65

162: customer 66 enters; to wait queue

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

163: clerk 1 is done with customer 65; gets customer 67

167: clerk 1 is done with customer 67; gets customer 54

169: customer 70 enters; to wait queue

173: customer 71 enters; to wait queue

173: clerk 1 is done with customer 54; gets customer 70

177: customer 72 enters; to wait queue

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

178: clerk 1 is done with customer 70; gets customer 72

180: customer 75 enters; to wait queue

180: clerk 1 is done with customer 72; gets customer 75

182: customer 76 enters; to wait queue

182: clerk 1 is done with customer 75; gets customer 62

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

187: customer 81 enters; to wait queue

188: clerk 1 is done with customer 62; gets customer 77

191: clerk 1 is done with customer 77; gets customer 71

192: customer 82 enters; to wait queue

193: customer 83 enters; to wait queue

195: customer 84 enters; to wait queue

197: clerk 1 is done with customer 71; gets customer 46

198: customer 85 enters; to wait queue

200: customer 86 enters; to wait queue

203: customer 87 enters; to wait queue

204: customer 88 enters; to wait queue

204: clerk 1 is done with customer 46; gets customer 88

207: customer 89 enters; to wait queue

209: clerk 1 is done with customer 88; gets customer 89

212: customer 90 enters; to wait queue

212: clerk 1 is done with customer 89; gets customer 51

215: customer 91 enters; to wait queue

219: clerk 1 is done with customer 51; gets customer 64

222: customer 92 enters; to wait queue

224: customer 93 enters; to wait queue

226: customer 94 enters; to wait queue

226: clerk 1 is done with customer 64; gets customer 93

229: customer 95 enters; to wait queue

232: customer 96 enters; to wait queue

232: clerk 1 is done with customer 93; gets customer 42

234: customer 97 enters; to wait queue

235: customer 98 enters; to wait queue

237: customer 99 enters; to wait queue

238: customer 100 enters; to wait queue

240: clerk 1 is done with customer 42; gets customer 97

244: clerk 1 is done with customer 97; gets customer 99

250: clerk 1 is done with customer 99; gets customer 58

258: clerk 1 is done with customer 58; gets customer 66

266: clerk 1 is done with customer 66; gets customer 69

274: clerk 1 is done with customer 69; gets customer 90

282: clerk 1 is done with customer 90; gets customer 30

291: clerk 1 is done with customer 30; gets customer 40

300: clerk 1 is done with customer 40; gets customer 79

309: clerk 1 is done with customer 79; gets customer 84

318: clerk 1 is done with customer 84; gets customer 19

328: clerk 1 is done with customer 19; gets customer 23

338: clerk 1 is done with customer 23; gets customer 32

348: clerk 1 is done with customer 32; gets customer 50

358: clerk 1 is done with customer 50; gets customer 61

368: clerk 1 is done with customer 61; gets customer 80

378: clerk 1 is done with customer 80; gets customer 98

388: clerk 1 is done with customer 98; gets customer 6

399: clerk 1 is done with customer 6; gets customer 11

410: clerk 1 is done with customer 11; gets customer 21

421: clerk 1 is done with customer 21; gets customer 22

432: clerk 1 is done with customer 22; gets customer 56

443: clerk 1 is done with customer 56; gets customer 10

455: clerk 1 is done with customer 10; gets customer 13

467: clerk 1 is done with customer 13; gets customer 81

479: clerk 1 is done with customer 81; gets customer 86

491: clerk 1 is done with customer 86; gets customer 96

503: clerk 1 is done with customer 96; gets customer 4

516: clerk 1 is done with customer 4; gets customer 14

529: clerk 1 is done with customer 14; gets customer 17

542: clerk 1 is done with customer 17; gets customer 68

555: clerk 1 is done with customer 68; gets customer 85

568: clerk 1 is done with customer 85; gets customer 95

581: clerk 1 is done with customer 95; gets customer 100

594: clerk 1 is done with customer 100; gets customer 16

608: clerk 1 is done with customer 16; gets customer 34

622: clerk 1 is done with customer 34; gets customer 36

636: clerk 1 is done with customer 36; gets customer 60

650: clerk 1 is done with customer 60; gets customer 94

664: clerk 1 is done with customer 94; gets customer 87

679: clerk 1 is done with customer 87; gets customer 5

695: clerk 1 is done with customer 5; gets customer 48

711: clerk 1 is done with customer 48; gets customer 78

727: clerk 1 is done with customer 78; gets customer 82

743: clerk 1 is done with customer 82; gets customer 7

760: clerk 1 is done with customer 7; gets customer 33

777: clerk 1 is done with customer 33; gets customer 73

794: clerk 1 is done with customer 73; gets customer 74

811: clerk 1 is done with customer 74; gets customer 76

828: clerk 1 is done with customer 76; gets customer 83

845: clerk 1 is done with customer 83; gets customer 91

862: clerk 1 is done with customer 91; gets customer 92

879: clerk 1 is done with customer 92; to idle queue

SJF: finish at 879

minwait = 0 meanwait = 198.2600 maxwait = 722

minidle = 0 meanidle = 10.0000 maxidle = 9

2 clerks --

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 2

14: customer 3 enters; to clerk 1

15: customer 4 enters; to wait queue

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 2 is done with customer 2; gets customer 4

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

25: clerk 1 is done with customer 3; gets customer 5

26: customer 10 enters; to wait queue

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

30: customer 13 enters; to wait queue

33: clerk 2 is done with customer 4; gets customer 6

34: customer 14 enters; to wait queue

40: customer 15 enters; to wait queue

41: clerk 1 is done with customer 5; gets customer 7

44: clerk 2 is done with customer 6; gets customer 8

45: customer 16 enters; to wait queue

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

52: clerk 2 is done with customer 8; gets customer 9

53: customer 19 enters; to wait queue

53: clerk 2 is done with customer 9; gets customer 10

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

58: customer 22 enters; to wait queue

58: clerk 1 is done with customer 7; gets customer 11

60: customer 23 enters; to wait queue

61: customer 24 enters; to wait queue

65: customer 25 enters; to wait queue

65: clerk 2 is done with customer 10; gets customer 12

69: clerk 1 is done with customer 11; gets customer 13

75: customer 26 enters; to wait queue

75: clerk 2 is done with customer 12; gets customer 14

79: customer 27 enters; to wait queue

81: customer 28 enters; to wait queue

81: clerk 1 is done with customer 13; gets customer 15

85: customer 29 enters; to wait queue

88: customer 30 enters; to wait queue

88: clerk 2 is done with customer 14; gets customer 16

88: clerk 1 is done with customer 15; gets customer 17

89: customer 31 enters; to wait queue

90: customer 32 enters; to wait queue

95: customer 33 enters; to wait queue

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

101: customer 36 enters; to wait queue

101: clerk 1 is done with customer 17; gets customer 18

102: clerk 2 is done with customer 16; gets customer 19

106: customer 37 enters; to wait queue

108: customer 38 enters; to wait queue

111: customer 39 enters; to wait queue

111: clerk 1 is done with customer 18; gets customer 20

112: clerk 2 is done with customer 19; gets customer 21

114: customer 40 enters; to wait queue

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

116: clerk 1 is done with customer 20; gets customer 22

117: customer 44 enters; to wait queue

118: customer 45 enters; to wait queue

120: customer 46 enters; to wait queue

123: customer 47 enters; to wait queue

123: clerk 2 is done with customer 21; gets customer 23

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

125: customer 50 enters; to wait queue

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

127: clerk 1 is done with customer 22; gets customer 24

131: clerk 1 is done with customer 24; gets customer 25

132: customer 53 enters; to wait queue

133: clerk 2 is done with customer 23; gets customer 26

135: customer 54 enters; to wait queue

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

137: clerk 1 is done with customer 25; gets customer 27

138: clerk 2 is done with customer 26; gets customer 28

139: clerk 1 is done with customer 27; gets customer 29

140: clerk 1 is done with customer 29; gets customer 30

141: customer 57 enters; to wait queue

146: customer 58 enters; to wait queue

146: clerk 2 is done with customer 28; gets customer 31

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

149: customer 61 enters; to wait queue

149: clerk 1 is done with customer 30; gets customer 32

149: clerk 2 is done with customer 31; gets customer 33

155: customer 62 enters; to wait queue

157: customer 63 enters; to wait queue

159: customer 64 enters; to wait queue

159: clerk 1 is done with customer 32; gets customer 34

160: customer 65 enters; to wait queue

162: customer 66 enters; to wait queue

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

166: clerk 2 is done with customer 33; gets customer 35

169: customer 70 enters; to wait queue

172: clerk 2 is done with customer 35; gets customer 36

173: customer 71 enters; to wait queue

173: clerk 1 is done with customer 34; gets customer 37

175: clerk 1 is done with customer 37; gets customer 38

177: customer 72 enters; to wait queue

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

180: customer 75 enters; to wait queue

182: customer 76 enters; to wait queue

183: clerk 1 is done with customer 38; gets customer 39

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

185: clerk 1 is done with customer 39; gets customer 40

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

186: clerk 2 is done with customer 36; gets customer 41

187: customer 81 enters; to wait queue

192: customer 82 enters; to wait queue

192: clerk 2 is done with customer 41; gets customer 42

193: customer 83 enters; to wait queue

194: clerk 1 is done with customer 40; gets customer 43

195: customer 84 enters; to wait queue

198: customer 85 enters; to wait queue

198: clerk 1 is done with customer 43; gets customer 44

200: customer 86 enters; to wait queue

200: clerk 2 is done with customer 42; gets customer 45

202: clerk 1 is done with customer 44; gets customer 46

203: customer 87 enters; to wait queue

204: customer 88 enters; to wait queue

204: clerk 2 is done with customer 45; gets customer 47

207: customer 89 enters; to wait queue

209: clerk 1 is done with customer 46; gets customer 48

210: clerk 2 is done with customer 47; gets customer 49

212: customer 90 enters; to wait queue

212: clerk 2 is done with customer 49; gets customer 50

215: customer 91 enters; to wait queue

222: customer 92 enters; to wait queue

222: clerk 2 is done with customer 50; gets customer 51

224: customer 93 enters; to wait queue

225: clerk 1 is done with customer 48; gets customer 52

226: customer 94 enters; to wait queue

229: customer 95 enters; to wait queue

229: clerk 2 is done with customer 51; gets customer 53

230: clerk 1 is done with customer 52; gets customer 54

232: customer 96 enters; to wait queue

232: clerk 2 is done with customer 53; gets customer 55

234: customer 97 enters; to wait queue

235: customer 98 enters; to wait queue

235: clerk 2 is done with customer 55; gets customer 56

236: clerk 1 is done with customer 54; gets customer 57

237: customer 99 enters; to wait queue

237: clerk 1 is done with customer 57; gets customer 58

238: customer 100 enters; to wait queue

245: clerk 1 is done with customer 58; gets customer 59

246: clerk 2 is done with customer 56; gets customer 60

246: clerk 1 is done with customer 59; gets customer 61

256: clerk 1 is done with customer 61; gets customer 62

260: clerk 2 is done with customer 60; gets customer 63

262: clerk 1 is done with customer 62; gets customer 64

262: clerk 2 is done with customer 63; gets customer 65

265: clerk 2 is done with customer 65; gets customer 66

269: clerk 1 is done with customer 64; gets customer 67

273: clerk 2 is done with customer 66; gets customer 68

273: clerk 1 is done with customer 67; gets customer 69

281: clerk 1 is done with customer 69; gets customer 70

286: clerk 2 is done with customer 68; gets customer 71

286: clerk 1 is done with customer 70; gets customer 72

288: clerk 1 is done with customer 72; gets customer 73

292: clerk 2 is done with customer 71; gets customer 74

305: clerk 1 is done with customer 73; gets customer 75

307: clerk 1 is done with customer 75; gets customer 76

309: clerk 2 is done with customer 74; gets customer 77

312: clerk 2 is done with customer 77; gets customer 78

324: clerk 1 is done with customer 76; gets customer 79

328: clerk 2 is done with customer 78; gets customer 80

333: clerk 1 is done with customer 79; gets customer 81

338: clerk 2 is done with customer 80; gets customer 82

345: clerk 1 is done with customer 81; gets customer 83

354: clerk 2 is done with customer 82; gets customer 84

362: clerk 1 is done with customer 83; gets customer 85

363: clerk 2 is done with customer 84; gets customer 86

375: clerk 1 is done with customer 85; gets customer 87

375: clerk 2 is done with customer 86; gets customer 88

380: clerk 2 is done with customer 88; gets customer 89

383: clerk 2 is done with customer 89; gets customer 90

390: clerk 1 is done with customer 87; gets customer 91

391: clerk 2 is done with customer 90; gets customer 92

407: clerk 1 is done with customer 91; gets customer 93

408: clerk 2 is done with customer 92; gets customer 94

413: clerk 1 is done with customer 93; gets customer 95

422: clerk 2 is done with customer 94; gets customer 96

426: clerk 1 is done with customer 95; gets customer 97

430: clerk 1 is done with customer 97; gets customer 98

434: clerk 2 is done with customer 96; gets customer 99

440: clerk 1 is done with customer 98; gets customer 100

440: clerk 2 is done with customer 99; to idle queue

453: clerk 1 is done with customer 100; to idle queue

FCFC: finish at 453

minwait = 0 meanwait = 93.2500 maxwait = 202

minidle = 0 meanidle = 18.5000 maxidle = 24

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 2

14: customer 3 enters; to clerk 1

15: customer 4 enters; to wait queue

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 2 is done with customer 2; gets customer 6

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

25: clerk 1 is done with customer 3; gets customer 9

26: customer 10 enters; to wait queue

26: clerk 1 is done with customer 9; gets customer 8

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

30: customer 13 enters; to wait queue

31: clerk 2 is done with customer 6; gets customer 12

34: customer 14 enters; to wait queue

34: clerk 1 is done with customer 8; gets customer 11

40: customer 15 enters; to wait queue

41: clerk 2 is done with customer 12; gets customer 15

45: customer 16 enters; to wait queue

45: clerk 1 is done with customer 11; gets customer 10

48: clerk 2 is done with customer 15; gets customer 13

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

53: customer 19 enters; to wait queue

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

57: clerk 1 is done with customer 10; gets customer 20

58: customer 22 enters; to wait queue

60: customer 23 enters; to wait queue

60: clerk 2 is done with customer 13; gets customer 18

61: customer 24 enters; to wait queue

62: clerk 1 is done with customer 20; gets customer 24

65: customer 25 enters; to wait queue

66: clerk 1 is done with customer 24; gets customer 25

70: clerk 2 is done with customer 18; gets customer 19

72: clerk 1 is done with customer 25; gets customer 23

75: customer 26 enters; to wait queue

79: customer 27 enters; to wait queue

80: clerk 2 is done with customer 19; gets customer 27

81: customer 28 enters; to wait queue

82: clerk 1 is done with customer 23; gets customer 26

82: clerk 2 is done with customer 27; gets customer 28

85: customer 29 enters; to wait queue

87: clerk 1 is done with customer 26; gets customer 29

88: customer 30 enters; to wait queue

88: clerk 1 is done with customer 29; gets customer 30

89: customer 31 enters; to wait queue

90: customer 32 enters; to wait queue

90: clerk 2 is done with customer 28; gets customer 31

93: clerk 2 is done with customer 31; gets customer 32

95: customer 33 enters; to wait queue

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

97: clerk 1 is done with customer 30; gets customer 35

101: customer 36 enters; to wait queue

103: clerk 2 is done with customer 32; gets customer 21

103: clerk 1 is done with customer 35; gets customer 22

106: customer 37 enters; to wait queue

108: customer 38 enters; to wait queue

111: customer 39 enters; to wait queue

114: customer 40 enters; to wait queue

114: clerk 2 is done with customer 21; gets customer 37

114: clerk 1 is done with customer 22; gets customer 39

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

116: clerk 2 is done with customer 37; gets customer 43

116: clerk 1 is done with customer 39; gets customer 41

117: customer 44 enters; to wait queue

118: customer 45 enters; to wait queue

120: customer 46 enters; to wait queue

120: clerk 2 is done with customer 43; gets customer 44

122: clerk 1 is done with customer 41; gets customer 45

123: customer 47 enters; to wait queue

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

124: clerk 2 is done with customer 44; gets customer 49

125: customer 50 enters; to wait queue

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

126: clerk 1 is done with customer 45; gets customer 52

126: clerk 2 is done with customer 49; gets customer 47

131: clerk 1 is done with customer 52; gets customer 46

132: customer 53 enters; to wait queue

132: clerk 2 is done with customer 47; gets customer 53

135: customer 54 enters; to wait queue

135: clerk 2 is done with customer 53; gets customer 54

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

138: clerk 1 is done with customer 46; gets customer 55

141: customer 57 enters; to wait queue

141: clerk 2 is done with customer 54; gets customer 57

141: clerk 1 is done with customer 55; gets customer 51

142: clerk 2 is done with customer 57; gets customer 38

146: customer 58 enters; to wait queue

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

148: clerk 1 is done with customer 51; gets customer 59

149: customer 61 enters; to wait queue

149: clerk 1 is done with customer 59; gets customer 42

150: clerk 2 is done with customer 38; gets customer 58

155: customer 62 enters; to wait queue

157: customer 63 enters; to wait queue

157: clerk 1 is done with customer 42; gets customer 63

158: clerk 2 is done with customer 58; gets customer 62

159: customer 64 enters; to wait queue

159: clerk 1 is done with customer 63; gets customer 64

160: customer 65 enters; to wait queue

162: customer 66 enters; to wait queue

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

164: clerk 2 is done with customer 62; gets customer 65

166: clerk 1 is done with customer 64; gets customer 67

167: clerk 2 is done with customer 65; gets customer 66

169: customer 70 enters; to wait queue

170: clerk 1 is done with customer 67; gets customer 70

173: customer 71 enters; to wait queue

175: clerk 2 is done with customer 66; gets customer 71

175: clerk 1 is done with customer 70; gets customer 69

177: customer 72 enters; to wait queue

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

180: customer 75 enters; to wait queue

181: clerk 2 is done with customer 71; gets customer 72

182: customer 76 enters; to wait queue

183: clerk 1 is done with customer 69; gets customer 75

183: clerk 2 is done with customer 72; gets customer 40

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

185: clerk 1 is done with customer 75; gets customer 77

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

187: customer 81 enters; to wait queue

188: clerk 1 is done with customer 77; gets customer 79

192: customer 82 enters; to wait queue

192: clerk 2 is done with customer 40; gets customer 50

193: customer 83 enters; to wait queue

195: customer 84 enters; to wait queue

197: clerk 1 is done with customer 79; gets customer 84

198: customer 85 enters; to wait queue

200: customer 86 enters; to wait queue

202: clerk 2 is done with customer 50; gets customer 61

203: customer 87 enters; to wait queue

204: customer 88 enters; to wait queue

206: clerk 1 is done with customer 84; gets customer 88

207: customer 89 enters; to wait queue

211: clerk 1 is done with customer 88; gets customer 89

212: customer 90 enters; to wait queue

212: clerk 2 is done with customer 61; gets customer 90

214: clerk 1 is done with customer 89; gets customer 80

215: customer 91 enters; to wait queue

220: clerk 2 is done with customer 90; gets customer 56

222: customer 92 enters; to wait queue

224: customer 93 enters; to wait queue

224: clerk 1 is done with customer 80; gets customer 93

226: customer 94 enters; to wait queue

229: customer 95 enters; to wait queue

230: clerk 1 is done with customer 93; gets customer 81

231: clerk 2 is done with customer 56; gets customer 86

232: customer 96 enters; to wait queue

234: customer 97 enters; to wait queue

235: customer 98 enters; to wait queue

237: customer 99 enters; to wait queue

238: customer 100 enters; to wait queue

242: clerk 1 is done with customer 81; gets customer 97

243: clerk 2 is done with customer 86; gets customer 99

246: clerk 1 is done with customer 97; gets customer 98

249: clerk 2 is done with customer 99; gets customer 96

256: clerk 1 is done with customer 98; gets customer 4

261: clerk 2 is done with customer 96; gets customer 14

269: clerk 1 is done with customer 4; gets customer 17

274: clerk 2 is done with customer 14; gets customer 68

282: clerk 1 is done with customer 17; gets customer 85

287: clerk 2 is done with customer 68; gets customer 95

295: clerk 1 is done with customer 85; gets customer 100

300: clerk 2 is done with customer 95; gets customer 16

308: clerk 1 is done with customer 100; gets customer 34

314: clerk 2 is done with customer 16; gets customer 36

322: clerk 1 is done with customer 34; gets customer 60

328: clerk 2 is done with customer 36; gets customer 94

336: clerk 1 is done with customer 60; gets customer 87

342: clerk 2 is done with customer 94; gets customer 5

351: clerk 1 is done with customer 87; gets customer 48

358: clerk 2 is done with customer 5; gets customer 78

367: clerk 1 is done with customer 48; gets customer 82

374: clerk 2 is done with customer 78; gets customer 7

383: clerk 1 is done with customer 82; gets customer 33

391: clerk 2 is done with customer 7; gets customer 73

400: clerk 1 is done with customer 33; gets customer 74

408: clerk 2 is done with customer 73; gets customer 76

417: clerk 1 is done with customer 74; gets customer 83

425: clerk 2 is done with customer 76; gets customer 91

434: clerk 1 is done with customer 83; gets customer 92

442: clerk 2 is done with customer 91; to idle queue

451: clerk 1 is done with customer 92; to idle queue

SJF: finish at 451

minwait = 0 meanwait = 57.2800 maxwait = 353

minidle = 0 meanidle = 16.5000 maxidle = 20

3 clerks --

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 2

14: customer 3 enters; to clerk 3

15: customer 4 enters; to clerk 1

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 2 is done with customer 2; gets customer 5

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

25: clerk 3 is done with customer 3; gets customer 6

26: customer 10 enters; to wait queue

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

28: clerk 1 is done with customer 4; gets customer 7

30: customer 13 enters; to wait queue

34: customer 14 enters; to wait queue

36: clerk 2 is done with customer 5; gets customer 8

36: clerk 3 is done with customer 6; gets customer 9

37: clerk 3 is done with customer 9; gets customer 10

40: customer 15 enters; to wait queue

44: clerk 2 is done with customer 8; gets customer 11

45: customer 16 enters; to wait queue

45: clerk 1 is done with customer 7; gets customer 12

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

49: clerk 3 is done with customer 10; gets customer 13

53: customer 19 enters; to wait queue

55: clerk 2 is done with customer 11; gets customer 14

55: clerk 1 is done with customer 12; gets customer 15

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

58: customer 22 enters; to wait queue

60: customer 23 enters; to wait queue

61: customer 24 enters; to wait queue

61: clerk 3 is done with customer 13; gets customer 16

62: clerk 1 is done with customer 15; gets customer 17

65: customer 25 enters; to wait queue

68: clerk 2 is done with customer 14; gets customer 18

75: customer 26 enters; to wait queue

75: clerk 3 is done with customer 16; gets customer 19

75: clerk 1 is done with customer 17; gets customer 20

78: clerk 2 is done with customer 18; gets customer 21

79: customer 27 enters; to wait queue

80: clerk 1 is done with customer 20; gets customer 22

81: customer 28 enters; to wait queue

85: customer 29 enters; to wait queue

85: clerk 3 is done with customer 19; gets customer 23

88: customer 30 enters; to wait queue

89: customer 31 enters; to wait queue

89: clerk 2 is done with customer 21; gets customer 24

90: customer 32 enters; to wait queue

91: clerk 1 is done with customer 22; gets customer 25

93: clerk 2 is done with customer 24; gets customer 26

95: customer 33 enters; to wait queue

95: clerk 3 is done with customer 23; gets customer 27

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

97: clerk 1 is done with customer 25; gets customer 28

97: clerk 3 is done with customer 27; gets customer 29

98: clerk 2 is done with customer 26; gets customer 30

98: clerk 3 is done with customer 29; gets customer 31

101: customer 36 enters; to wait queue

101: clerk 3 is done with customer 31; gets customer 32

105: clerk 1 is done with customer 28; gets customer 33

106: customer 37 enters; to wait queue

107: clerk 2 is done with customer 30; gets customer 34

108: customer 38 enters; to wait queue

111: customer 39 enters; to wait queue

111: clerk 3 is done with customer 32; gets customer 35

114: customer 40 enters; to wait queue

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

117: customer 44 enters; to wait queue

117: clerk 3 is done with customer 35; gets customer 36

118: customer 45 enters; to wait queue

120: customer 46 enters; to wait queue

121: clerk 2 is done with customer 34; gets customer 37

122: clerk 1 is done with customer 33; gets customer 38

123: customer 47 enters; to wait queue

123: clerk 2 is done with customer 37; gets customer 39

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

125: customer 50 enters; to wait queue

125: clerk 2 is done with customer 39; gets customer 40

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

130: clerk 1 is done with customer 38; gets customer 41

131: clerk 3 is done with customer 36; gets customer 42

132: customer 53 enters; to wait queue

134: clerk 2 is done with customer 40; gets customer 43

135: customer 54 enters; to wait queue

136: clerk 1 is done with customer 41; gets customer 44

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

138: clerk 2 is done with customer 43; gets customer 45

139: clerk 3 is done with customer 42; gets customer 46

140: clerk 1 is done with customer 44; gets customer 47

141: customer 57 enters; to wait queue

142: clerk 2 is done with customer 45; gets customer 48

146: customer 58 enters; to wait queue

146: clerk 3 is done with customer 46; gets customer 49

146: clerk 1 is done with customer 47; gets customer 50

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

148: clerk 3 is done with customer 49; gets customer 51

149: customer 61 enters; to wait queue

155: customer 62 enters; to wait queue

155: clerk 3 is done with customer 51; gets customer 52

156: clerk 1 is done with customer 50; gets customer 53

157: customer 63 enters; to wait queue

158: clerk 2 is done with customer 48; gets customer 54

159: customer 64 enters; to wait queue

159: clerk 1 is done with customer 53; gets customer 55

160: customer 65 enters; to wait queue

160: clerk 3 is done with customer 52; gets customer 56

162: customer 66 enters; to wait queue

162: clerk 1 is done with customer 55; gets customer 57

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

163: clerk 1 is done with customer 57; gets customer 58

164: clerk 2 is done with customer 54; gets customer 59

165: clerk 2 is done with customer 59; gets customer 60

169: customer 70 enters; to wait queue

171: clerk 3 is done with customer 56; gets customer 61

171: clerk 1 is done with customer 58; gets customer 62

173: customer 71 enters; to wait queue

177: customer 72 enters; to wait queue

177: clerk 1 is done with customer 62; gets customer 63

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

179: clerk 2 is done with customer 60; gets customer 64

179: clerk 1 is done with customer 63; gets customer 65

180: customer 75 enters; to wait queue

181: clerk 3 is done with customer 61; gets customer 66

182: customer 76 enters; to wait queue

182: clerk 1 is done with customer 65; gets customer 67

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

186: clerk 2 is done with customer 64; gets customer 68

186: clerk 1 is done with customer 67; gets customer 69

187: customer 81 enters; to wait queue

189: clerk 3 is done with customer 66; gets customer 70

192: customer 82 enters; to wait queue

193: customer 83 enters; to wait queue

194: clerk 1 is done with customer 69; gets customer 71

194: clerk 3 is done with customer 70; gets customer 72

195: customer 84 enters; to wait queue

196: clerk 3 is done with customer 72; gets customer 73

198: customer 85 enters; to wait queue

199: clerk 2 is done with customer 68; gets customer 74

200: customer 86 enters; to wait queue

200: clerk 1 is done with customer 71; gets customer 75

202: clerk 1 is done with customer 75; gets customer 76

203: customer 87 enters; to wait queue

204: customer 88 enters; to wait queue

207: customer 89 enters; to wait queue

212: customer 90 enters; to wait queue

213: clerk 3 is done with customer 73; gets customer 77

215: customer 91 enters; to wait queue

216: clerk 2 is done with customer 74; gets customer 78

216: clerk 3 is done with customer 77; gets customer 79

219: clerk 1 is done with customer 76; gets customer 80

222: customer 92 enters; to wait queue

224: customer 93 enters; to wait queue

225: clerk 3 is done with customer 79; gets customer 81

226: customer 94 enters; to wait queue

229: customer 95 enters; to wait queue

229: clerk 1 is done with customer 80; gets customer 82

232: customer 96 enters; to wait queue

232: clerk 2 is done with customer 78; gets customer 83

234: customer 97 enters; to wait queue

235: customer 98 enters; to wait queue

237: customer 99 enters; to wait queue

237: clerk 3 is done with customer 81; gets customer 84

238: customer 100 enters; to wait queue

245: clerk 1 is done with customer 82; gets customer 85

246: clerk 3 is done with customer 84; gets customer 86

249: clerk 2 is done with customer 83; gets customer 87

258: clerk 1 is done with customer 85; gets customer 88

258: clerk 3 is done with customer 86; gets customer 89

261: clerk 3 is done with customer 89; gets customer 90

263: clerk 1 is done with customer 88; gets customer 91

264: clerk 2 is done with customer 87; gets customer 92

269: clerk 3 is done with customer 90; gets customer 93

275: clerk 3 is done with customer 93; gets customer 94

280: clerk 1 is done with customer 91; gets customer 95

281: clerk 2 is done with customer 92; gets customer 96

289: clerk 3 is done with customer 94; gets customer 97

293: clerk 1 is done with customer 95; gets customer 98

293: clerk 2 is done with customer 96; gets customer 99

293: clerk 3 is done with customer 97; gets customer 100

299: clerk 2 is done with customer 99; to idle queue

303: clerk 1 is done with customer 98; to idle queue

306: clerk 3 is done with customer 100; to idle queue

FCFC: finish at 306

minwait = 0 meanwait = 23.5000 maxwait = 58

minidle = 0 meanidle = 16.3333 maxidle = 18

4: customer 1 enters; to clerk 1

6: clerk 1 is done with customer 1; to idle queue

11: customer 2 enters; to clerk 2

14: customer 3 enters; to clerk 3

15: customer 4 enters; to clerk 1

16: customer 5 enters; to wait queue

18: customer 6 enters; to wait queue

20: clerk 2 is done with customer 2; gets customer 6

21: customer 7 enters; to wait queue

22: customer 8 enters; to wait queue

23: customer 9 enters; to wait queue

25: clerk 3 is done with customer 3; gets customer 9

26: customer 10 enters; to wait queue

26: clerk 3 is done with customer 9; gets customer 8

27: customer 11 enters; to wait queue

28: customer 12 enters; to wait queue

28: clerk 1 is done with customer 4; gets customer 12

30: customer 13 enters; to wait queue

31: clerk 2 is done with customer 6; gets customer 11

34: customer 14 enters; to wait queue

34: clerk 3 is done with customer 8; gets customer 10

38: clerk 1 is done with customer 12; gets customer 13

40: customer 15 enters; to wait queue

42: clerk 2 is done with customer 11; gets customer 15

45: customer 16 enters; to wait queue

46: clerk 3 is done with customer 10; gets customer 14

49: customer 17 enters; to wait queue

49: customer 18 enters; to wait queue

49: clerk 2 is done with customer 15; gets customer 18

50: clerk 1 is done with customer 13; gets customer 17

53: customer 19 enters; to wait queue

56: customer 20 enters; to wait queue

56: customer 21 enters; to wait queue

58: customer 22 enters; to wait queue

59: clerk 3 is done with customer 14; gets customer 20

59: clerk 2 is done with customer 18; gets customer 19

60: customer 23 enters; to wait queue

61: customer 24 enters; to wait queue

63: clerk 1 is done with customer 17; gets customer 24

64: clerk 3 is done with customer 20; gets customer 23

65: customer 25 enters; to wait queue

67: clerk 1 is done with customer 24; gets customer 25

69: clerk 2 is done with customer 19; gets customer 21

73: clerk 1 is done with customer 25; gets customer 22

74: clerk 3 is done with customer 23; gets customer 16

75: customer 26 enters; to wait queue

79: customer 27 enters; to wait queue

80: clerk 2 is done with customer 21; gets customer 27

81: customer 28 enters; to wait queue

82: clerk 2 is done with customer 27; gets customer 26

84: clerk 1 is done with customer 22; gets customer 28

85: customer 29 enters; to wait queue

87: clerk 2 is done with customer 26; gets customer 29

88: customer 30 enters; to wait queue

88: clerk 3 is done with customer 16; gets customer 30

88: clerk 2 is done with customer 29; gets customer 5

89: customer 31 enters; to wait queue

90: customer 32 enters; to wait queue

92: clerk 1 is done with customer 28; gets customer 31

95: customer 33 enters; to wait queue

95: clerk 1 is done with customer 31; gets customer 32

96: customer 34 enters; to wait queue

96: customer 35 enters; to wait queue

97: clerk 3 is done with customer 30; gets customer 35

101: customer 36 enters; to wait queue

103: clerk 3 is done with customer 35; gets customer 34

104: clerk 2 is done with customer 5; gets customer 36

105: clerk 1 is done with customer 32; gets customer 7

106: customer 37 enters; to wait queue

108: customer 38 enters; to wait queue

111: customer 39 enters; to wait queue

114: customer 40 enters; to wait queue

115: customer 41 enters; to wait queue

115: customer 42 enters; to wait queue

116: customer 43 enters; to wait queue

117: customer 44 enters; to wait queue

117: clerk 3 is done with customer 34; gets customer 37

118: customer 45 enters; to wait queue

118: clerk 2 is done with customer 36; gets customer 39

119: clerk 3 is done with customer 37; gets customer 43

120: customer 46 enters; to wait queue

120: clerk 2 is done with customer 39; gets customer 44

122: clerk 1 is done with customer 7; gets customer 45

123: customer 47 enters; to wait queue

123: clerk 3 is done with customer 43; gets customer 41

124: customer 48 enters; to wait queue

124: customer 49 enters; to wait queue

124: clerk 2 is done with customer 44; gets customer 49

125: customer 50 enters; to wait queue

126: customer 51 enters; to wait queue

126: customer 52 enters; to wait queue

126: clerk 1 is done with customer 45; gets customer 52

126: clerk 2 is done with customer 49; gets customer 47

129: clerk 3 is done with customer 41; gets customer 46

131: clerk 1 is done with customer 52; gets customer 51

132: customer 53 enters; to wait queue

132: clerk 2 is done with customer 47; gets customer 53

135: customer 54 enters; to wait queue

135: clerk 2 is done with customer 53; gets customer 54

136: clerk 3 is done with customer 46; gets customer 38

137: customer 55 enters; to wait queue

137: customer 56 enters; to wait queue

138: clerk 1 is done with customer 51; gets customer 55

141: customer 57 enters; to wait queue

141: clerk 2 is done with customer 54; gets customer 57

141: clerk 1 is done with customer 55; gets customer 42

142: clerk 2 is done with customer 57; gets customer 40

144: clerk 3 is done with customer 38; gets customer 50

146: customer 58 enters; to wait queue

147: customer 59 enters; to wait queue

148: customer 60 enters; to wait queue

149: customer 61 enters; to wait queue

149: clerk 1 is done with customer 42; gets customer 59

150: clerk 1 is done with customer 59; gets customer 58

151: clerk 2 is done with customer 40; gets customer 61

154: clerk 3 is done with customer 50; gets customer 56

155: customer 62 enters; to wait queue

157: customer 63 enters; to wait queue

158: clerk 1 is done with customer 58; gets customer 63

159: customer 64 enters; to wait queue

160: customer 65 enters; to wait queue

160: clerk 1 is done with customer 63; gets customer 65

161: clerk 2 is done with customer 61; gets customer 62

162: customer 66 enters; to wait queue

163: customer 67 enters; to wait queue

163: customer 68 enters; to wait queue

163: customer 69 enters; to wait queue

163: clerk 1 is done with customer 65; gets customer 67

165: clerk 3 is done with customer 56; gets customer 64

167: clerk 2 is done with customer 62; gets customer 66

167: clerk 1 is done with customer 67; gets customer 69

169: customer 70 enters; to wait queue

172: clerk 3 is done with customer 64; gets customer 70

173: customer 71 enters; to wait queue

175: clerk 2 is done with customer 66; gets customer 71

175: clerk 1 is done with customer 69; gets customer 68

177: customer 72 enters; to wait queue

177: clerk 3 is done with customer 70; gets customer 72

178: customer 73 enters; to wait queue

178: customer 74 enters; to wait queue

179: clerk 3 is done with customer 72; gets customer 60

180: customer 75 enters; to wait queue

181: clerk 2 is done with customer 71; gets customer 75

182: customer 76 enters; to wait queue

183: clerk 2 is done with customer 75; gets customer 48

185: customer 77 enters; to wait queue

185: customer 78 enters; to wait queue

186: customer 79 enters; to wait queue

186: customer 80 enters; to wait queue

187: customer 81 enters; to wait queue

188: clerk 1 is done with customer 68; gets customer 77

191: clerk 1 is done with customer 77; gets customer 79

192: customer 82 enters; to wait queue

193: customer 83 enters; to wait queue

193: clerk 3 is done with customer 60; gets customer 80

195: customer 84 enters; to wait queue

198: customer 85 enters; to wait queue

199: clerk 2 is done with customer 48; gets customer 84

200: customer 86 enters; to wait queue

200: clerk 1 is done with customer 79; gets customer 81

203: customer 87 enters; to wait queue

203: clerk 3 is done with customer 80; gets customer 86

204: customer 88 enters; to wait queue

207: customer 89 enters; to wait queue

208: clerk 2 is done with customer 84; gets customer 89

211: clerk 2 is done with customer 89; gets customer 88

212: customer 90 enters; to wait queue

212: clerk 1 is done with customer 81; gets customer 90

215: customer 91 enters; to wait queue

215: clerk 3 is done with customer 86; gets customer 85

216: clerk 2 is done with customer 88; gets customer 87

220: clerk 1 is done with customer 90; gets customer 78

222: customer 92 enters; to wait queue

224: customer 93 enters; to wait queue

226: customer 94 enters; to wait queue

228: clerk 3 is done with customer 85; gets customer 93

229: customer 95 enters; to wait queue

231: clerk 2 is done with customer 87; gets customer 95

232: customer 96 enters; to wait queue

234: customer 97 enters; to wait queue

234: clerk 3 is done with customer 93; gets customer 97

235: customer 98 enters; to wait queue

236: clerk 1 is done with customer 78; gets customer 98

237: customer 99 enters; to wait queue

238: customer 100 enters; to wait queue

238: clerk 3 is done with customer 97; gets customer 99

244: clerk 2 is done with customer 95; gets customer 96

244: clerk 3 is done with customer 99; gets customer 100

246: clerk 1 is done with customer 98; gets customer 94

256: clerk 2 is done with customer 96; gets customer 82

257: clerk 3 is done with customer 100; gets customer 33

260: clerk 1 is done with customer 94; gets customer 73

272: clerk 2 is done with customer 82; gets customer 74

274: clerk 3 is done with customer 33; gets customer 76

277: clerk 1 is done with customer 73; gets customer 83

289: clerk 2 is done with customer 74; gets customer 91

291: clerk 3 is done with customer 76; gets customer 92

294: clerk 1 is done with customer 83; to idle queue

306: clerk 2 is done with customer 91; to idle queue

308: clerk 3 is done with customer 92; to idle queue

SJF: finish at 308

minwait = 0 meanwait = 14.9000 maxwait = 162

minidle = 0 meanidle = 18.3333 maxidle = 27

**mmac:cs3240 mlmartinez85$ ./bank 6 10 jobs01**

**bank: data file is "jobs01"**

6 clerks --

FCFC: finish at 685

minwait = 0 meanwait = 135.2900 maxwait = 306

minidle = 0 meanidle = 17.1667 maxidle = 31

SJF: finish at 697

minwait = 0 meanwait = 84.1300 maxwait = 613

minidle = 0 meanidle = 29.1667 maxidle = 45

7 clerks --

FCFC: finish at 593

minwait = 0 meanwait = 90.7400 maxwait = 214

minidle = 0 meanidle = 20.5714 maxidle = 35

SJF: finish at 601

minwait = 0 meanwait = 56.0100 maxwait = 488

minidle = 0 meanidle = 28.5714 maxidle = 43

8 clerks --

FCFC: finish at 523

minwait = 0 meanwait = 57.3400 maxwait = 142

minidle = 0 meanidle = 22.1250 maxidle = 30

SJF: finish at 530

minwait = 0 meanwait = 35.4050 maxwait = 423

minidle = 0 meanidle = 29.1250 maxidle = 46

9 clerks --

FCFC: finish at 471

minwait = 0 meanwait = 31.4800 maxwait = 87

minidle = 0 meanidle = 25.7778 maxidle = 42

SJF: finish at 473

minwait = 0 meanwait = 20.1500 maxwait = 262

minidle = 0 meanidle = 27.7778 maxidle = 50

10 clerks --

FCFC: finish at 431

minwait = 0 meanwait = 13.9700 maxwait = 49

minidle = 0 meanidle = 30.3000 maxidle = 40

SJF: finish at 435

minwait = 0 meanwait = 9.4600 maxwait = 155

minidle = 0 meanidle = 34.3000 maxidle = 51

**mmac:cs3240 mlmartinez85$ ./bank 4 8 jobs02**

**bank: data file is "jobs02"**

4 clerks --

FCFC: finish at 822

minwait = 0 meanwait = 181.7200 maxwait = 392

minidle = 0 meanidle = 8.5000 maxidle = 16

SJF: finish at 825

minwait = 0 meanwait = 108.4400 maxwait = 693

minidle = 0 meanidle = 11.5000 maxidle = 16

5 clerks --

FCFC: finish at 661

minwait = 0 meanwait = 102.4667 maxwait = 233

minidle = 0 meanidle = 10.2000 maxidle = 17

SJF: finish at 661

minwait = 0 meanwait = 59.4333 maxwait = 549

minidle = 0 meanidle = 10.2000 maxidle = 22

6 clerks --

FCFC: finish at 552

minwait = 0 meanwait = 49.7767 maxwait = 125

minidle = 0 meanidle = 9.6667 maxidle = 16

SJF: finish at 555

minwait = 0 meanwait = 28.5767 maxwait = 430

minidle = 0 meanidle = 12.6667 maxidle = 23

7 clerks --

FCFC: finish at 486

minwait = 0 meanwait = 18.6933 maxwait = 56

minidle = 0 meanidle = 21.1429 maxidle = 27

SJF: finish at 487

minwait = 0 meanwait = 11.2000 maxwait = 271

minidle = 0 meanidle = 22.1429 maxidle = 28

8 clerks --

FCFC: finish at 448

minwait = 0 meanwait = 4.2267 maxwait = 18

minidle = 0 meanidle = 41.2500 maxidle = 51

SJF: finish at 448

minwait = 0 meanwait = 2.8867 maxwait = 35

minidle = 0 meanidle = 41.2500 maxidle = 57

**mmac:cs3240 mlmartinez85$ ./bank 10 15 jobs03**

**bank: data file is "jobs03"**

10 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.8600 maxwait = 10

minidle = 0 meanidle = 51.7000 maxidle = 57

SJF: finish at 209

minwait = 0 meanwait = 0.6933 maxwait = 20

minidle = 0 meanidle = 51.7000 maxidle = 57

11 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.3800 maxwait = 7

minidle = 0 meanidle = 66.0000 maxidle = 69

SJF: finish at 209

minwait = 0 meanwait = 0.3067 maxwait = 17

minidle = 0 meanidle = 66.0000 maxidle = 69

12 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.1267 maxwait = 4

minidle = 0 meanidle = 77.9167 maxidle = 82

SJF: finish at 209

minwait = 0 meanwait = 0.1067 maxwait = 7

minidle = 0 meanidle = 77.9167 maxidle = 82

13 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.0133 maxwait = 1

minidle = 0 meanidle = 88.0000 maxidle = 92

SJF: finish at 209

minwait = 0 meanwait = 0.0067 maxwait = 1

minidle = 0 meanidle = 88.0000 maxidle = 92

14 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 96.6429 maxidle = 101

SJF: finish at 209

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 96.6429 maxidle = 101

15 clerks --

FCFC: finish at 209

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 104.1333 maxidle = 108

SJF: finish at 209

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 104.1333 maxidle = 108

**mmac:cs3240 mlmartinez85$ ./bank 18 24 jobs04**

**bank: data file is "jobs04"**

18 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 90.1111 maxidle = 92

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 90.1111 maxidle = 92

19 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 90.7895 maxidle = 92

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 90.7895 maxidle = 92

20 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 91.4000 maxidle = 93

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 91.4000 maxidle = 93

21 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 91.9524 maxidle = 94

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 91.9524 maxidle = 94

22 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 92.4545 maxidle = 94

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 92.4545 maxidle = 94

23 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 92.9130 maxidle = 94

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 92.9130 maxidle = 94

24 clerks --

FCFC: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 93.3333 maxidle = 95

SJF: finish at 103

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 93.3333 maxidle = 95

**mmac:cs3240 mlmartinez85$ ./bank 6 12 jobs05**

**bank: data file is "jobs05"**

6 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0083 maxwait = 1

minidle = 0 meanidle = 170.8333 maxidle = 175

SJF: finish at 306

minwait = 0 meanwait = 0.0083 maxwait = 1

minidle = 0 meanidle = 170.8333 maxidle = 175

7 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 190.1429 maxidle = 193

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 190.1429 maxidle = 193

8 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 204.6250 maxidle = 208

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 204.6250 maxidle = 208

9 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 215.8889 maxidle = 219

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 215.8889 maxidle = 219

10 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 224.9000 maxidle = 228

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 224.9000 maxidle = 228

11 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 232.2727 maxidle = 235

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 232.2727 maxidle = 235

12 clerks --

FCFC: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 238.4167 maxidle = 241

SJF: finish at 306

minwait = 0 meanwait = 0.0000 maxwait = 0

minidle = 0 meanidle = 238.4167 maxidle = 241