**SIT323 Cloud Application Development**

**Trimester 2, 2018**

**Assessment Task 1 – Programming Task 1**

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14. **Introduction**

This document will detail the justification and design of unit tests for the SIT323 Assignment 1 Crozzle software program.

The SIT323 Assignment 1 Crozzle software is being updated by the developers involved with this project to accept new reformatted configuration and data files based on the existing data files used by the software.

These tests are designed and performed for quality assurance, to test the performance and functionality of the software being updated and redesigned, to identify and resolve any issues during development of the program before the project is deployed and submitted for grading.

These tests will be used to ensure the program functions as expected, fulfils the requirements expected of the newly updated program, and can handle data files with illegal, missing, and invalid data with detailed reporting while avoiding program crashes.

1. **Test Scenario 1**
   1. Justifications
      1. Test Case 1.1

This test case will test for a valid boolean input, validated as a boolean, to ensure the program checks valid boolean inputs with a correct response.

* + 1. Test Case 1.2

This test case will test for an invalid input, validated as a boolean, to test for the functions response to an invalid input and ensure the program handles the exception properly without crashing.

* 1. Learning

Validating boolean values as well as invalid or missing data is important to ensure proper functionality of a program. Giving detailed error messages to inform a user of the error helps to avoid and correct any errors in user input.

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 2**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 3**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 4**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 5**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 6**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 7**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 8**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 9**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 10**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 11**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

1. **Test Scenario 12**
   1. Justifications
      1. Test Case 1.1

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* + 1. Test Case 1.2

INSERT JUSTIFICATION

* 1. Learning

FROM THIS SCENARIO I LERNT THAT …

* 1. Test Scenario Form

INSERT FORM AND DATA REFERENCES

# Appendix A – Test1.cfg

// Log File Configurations.

LOGFILE

// The default log file name.

DEFAULT="log.txt"

END-LOGFILE

// Letter Sequences Configurations.

// Limits on the number of unique letter sequences in the sequecnes file.

SEQUENCES-IN-FILE

MINIMUM=5

MAXIMUM=500

END-SEQUENCES-IN-FILE

// Crozzle Output Configurations.

CROZZLE-OUTPUT

INVALID-CROZZLE-SCORE="INVALID CROZZLE"

UPPERCASE=true

STYLE="<style> table, td { border: 1px solid black; border-collapse: collapse; } td { width:24px; height:18px; text-align: center; } </style>"

BGCOLOUR-EMPTY-TD=#777777

BGCOLOUR-NON-EMPTY-TD=#ffffff

END-CROZZLE-OUTPUT

// Crozzle Configurations.

// Limits on the size of the crozzle grid.

CROZZLE-SIZE

MINIMUM-ROWS=5

MAXIMUM-ROWS=500

MINIMUM-COLUMNS=5

MAXIMUM-COLUMNS=500

END-CROZZLE-SIZE

// Limits on the number of horizontal letter sequences and

// vertical letter sequences in a crozzle.

SEQUENCES-IN-CROZZLE

MINIMUM-HORIZONTAL=1

MAXIMUM-HORIZONTAL=200

MINIMUM-VERTICAL=1

MAXIMUM-VERTICAL=200

END-SEQUENCES-IN-CROZZLE

// Limits on the number of

// intersecting vertical sequences for each horizontal sequences, and

// intersecting horizontal sequences for each vertical sequences.

INTERSECTIONS-IN-SEQUENCES

MINIMUM-HORIZONTAL=1

MAXIMUM-HORIZONTAL=500

MINIMUM-VERTICAL=1

MAXIMUM-VERTICAL=500

END-INTERSECTIONS-IN-SEQUENCES

// Limits on duplicate letter sequences in the crozzle.

DUPLICATE-SEQUENCES

MINIMUM=0

MAXIMUM=0

END-DUPLICATE-SEQUENCES

// Limits on the number of valid groups.

VALID-GROUPS

MINIMUM=1

MAXIMUM=1

END-VALID-GROUPS

// Scoring Configurations

// Points per letter that is at the intersection of

// a horizontal and vertical sequence within the crozzle.

INTERSECTING-POINTS

A=1

B=2

C=2

D=2

E=1

F=2

G=2

H=2

I=1

J=4

K=4

L=4

M=4

N=4

O=1

P=8

Q=8

R=8

S=8

T=8

U=1

V=16

W=16

X=32

Y=32

Z=64

END-INTERSECTING-POINTS

// Points per letter that is not at the intersection of

// a horizontal and vertical sequence within the crozzle.

NON-INTERSECTING-POINTS

A=0

B=0

C=0

D=0

E=0

F=0

G=0

H=0

I=0

J=0

K=0

L=0

M=0

N=0

O=0

P=0

Q=0

R=0

S=0

T=0

U=0

V=0

W=0

X=0

Y=0

Z=0

END-NON-INTERSECTING-POINTS

# Appendix B – Test1.seq

"[a-zA-Z]{2,}",310,153,11504,11967

AL,10,2,141,153

ALAN,10,4,284,298

ANGELA,10,6,424,440

BETTY,10,5,392,407

BILL,10,4,291,305

BRENDA,10,6,428,444

CHARLES,10,7,514,531

FRED,10,4,289,303

GARY,10,4,307,321

GEORGE,10,6,441,457

GRAHAM,10,6,432,448

HARRY,10,5,390,405

JACK,10,4,281,295

JESSICA,10,7,514,531

JILL,10,4,299,313

JOHNATHON,10,9,681,700

LARRY,10,5,394,409

MARK,10,4,299,313

MARY,10,4,313,327

MATTHEW,10,7,538,555

OSCAR,10,5,376,391

PAM,10,3,222,235

PETER,10,5,384,399

ROBERT,10,6,462,478

ROGER,10,5,383,398

RON,10,3,239,252

RONALD,10,6,448,464

ROSE,10,4,313,327

SUSAN,10,5,394,409

TOM,10,3,240,253

WENDY,10,5,391,406

# Appendix C – Test1.czl

// File dependencies.

FILE-DEPENDENCIES

CONFIG-DATA=".\Test1.cfg"

SEQUENCE-DATA=".\Test1.seq"

END-FILE-DEPENDENCIES

// Crozzle Size. The number of rows and columns.

// This crozzle will have 10 rows and 15 columns.

CROZZLE-SIZE

SIZE=10,15

END-CROZZLE-SIZE

// Horizontal Sequence Data.

HORIZONTAL-SEQUENCES

SEQUENCE=PETER,LOCATION=1,1

SEQUENCE=RONALD,LOCATION=1,10

SEQUENCE=MARK,LOCATION=3,1

SEQUENCE=GRAHAM,LOCATION=3,10

SEQUENCE=BRENDA,LOCATION=5,3

SEQUENCE=FRED,LOCATION=5,12

SEQUENCE=LARRY,LOCATION=7,9

SEQUENCE=BETTY,LOCATION=8,1

SEQUENCE=RON,LOCATION=9,7

SEQUENCE=SUSAN,LOCATION=9,11

SEQUENCE=MARY,LOCATION=10,4

END-HORIZONTAL-SEQUENCES

// Vertical Sequence Data.

VERTICAL-SEQUENCES

SEQUENCE=PAM,LOCATION=1,1

SEQUENCE=ROBERT,LOCATION=3,3

SEQUENCE=TOM,LOCATION=8,4

SEQUENCE=WENDY,LOCATION=4,5

SEQUENCE=GARY,LOCATION=7,7

SEQUENCE=ALAN,LOCATION=6,9

SEQUENCE=ROGER,LOCATION=1,10

SEQUENCE=ROSE,LOCATION=7,11

SEQUENCE=HARRY,LOCATION=3,13

SEQUENCE=AL,LOCATION=9,14

END-VERTICAL-SEQUENCES

# Appendix D – Test2.cfg

// Log File Configurations.

LOGFILE

// The default log file name.

DEFAULT="log.txt"

END-LOGFILE

// Letter Sequences Configurations.

// Limits on the number of unique letter sequences in the sequecnes file.

SEQUENCES-IN-FILE

MINIMUM=5

MAXIMUM=500

END-SEQUENCES-IN-FILE

// Crozzle Output Configurations.

CROZZLE-OUTPUT

INVALID-CROZZLE-SCORE="INVALID CROZZLE"

UPPERCASE=true

STYLE="<style> table, td { border: 1px solid black; border-collapse: collapse; } td { width:24px; height:18px; text-align: center; } </style>"

BGCOLOUR-EMPTY-TD=#777

BGCOLOUR-NON-EMPTY-TD=#ffffff

END-CROZZLE-OUTPUT

// Crozzle Configurations.

// Limits on the size of the crozzle grid.

CROZZLE-SIZE

MINIMUM-ROWS=5

MAXIMUM-ROWS=500

MINIMUM-COLUMNS=5

MAXIMUM-COLUMNS=500

END-CROZZLE-SIZE

// Limits on the number of horizontal letter sequences and

// vertical letter sequences in a crozzle.

SEQUENCES-IN-CROZZLE

MINIMUM-HORIZONTAL=10

MAXIMUM-HORIZONTAL=200

MINIMUM-VERTICAL=1

MAXIMUM-VERTICAL=5

END-SEQUENCES-IN-CROZZLE

// Limits on the number of

// intersecting vertical sequences for each horizontal sequences, and

// intersecting horizontal sequences for each vertical sequences.

INTERSECTIONS-IN-SEQUENCES

MINIMUM-HORIZONTAL=1

MAXIMUM-HORIZONTAL=500

MINIMUM-VERTICAL=2

MAXIMUM-VERTICAL=500

END-INTERSECTIONS-IN-SEQUENCES

// Limits on duplicate letter sequences in the crozzle.

DUPLICATE-SEQUENCES

MINIMUM=0

MAXIMUM=1

END-DUPLICATE-SEQUENCES

// Limits on the number of valid groups.

VALID-GROUPS

MINIMUM=1

MAXIMUM=2

END-VALID-GROUPS

// Scoring Configurations

// Points per letter that is at the intersection of

// a horizontal and vertical sequence within the crozzle.

INTERSECTING-POINTS

A=1

B=2

C=2

D=2

E=1

F=2

G=2

H=2

I=1

J=4

K=4

L=4

M=4

N=4

O=1

P=8

Q=8

R=8

S=8

T=8

U=1

V=16

W=16

X=32

Y=32

Z=64

z=64

END-INTERSECTING-POINTS

// Points per letter that is not at the intersection of

// a horizontal and vertical sequence within the crozzle.

NON-INTERSECTING-POINTS

A=0

B=0

C=0

D=0

E=0

F=0

G=0

H=0

I=0

J=0

K=0

L=0

M=0

N=0

O=0

P=0

Q=0

R=0

S=0

T=0

U=0

V=0

W=0

X=0

Y=0

Z=0

END-NON-INTERSECTING-POINTS

# Appendix E – Test2.seq

"[a-zA-Z]{2,}",310,153,11426,11889

AL,10,2,141,153

ALAN,10,4,284,298

ANGELA,10,6,424,440

BETTY,10,5,392,407

BILL,10,4,291,305

BRENDA,10,6,428,444

CHARLES,10,7,514,531

FRED,10,4,289,303

GARY,10,4,307,321

GEORGE,10,6,441,457

GRAHAM,10,6,432,448

HARRY,10,5,390,405

JACK,10,4,281,295

JESSICA,10,7,514,531

JILL,10,4,299,313

JOHNATHON,10,9,603,622

LARRY,10,5,394,409

MARK,10,4,299,313

MARY,10,4,313,327

MATTHEW,10,7,538,555

OSCAR,10,5,376,391

PAM,10,3,222,235

PETER,10,5,384,399

ROBERT,10,6,462,478

ROGER,10,5,383,398

RON,10,3,239,252

RONALD,10,6,448,464

ROSE,10,4,313,327

SUSAN,10,5,394,409

TOM,10,3,240,253

WENDY,10,5,391,406

# Appendix F – Test2.czl

// File dependencies.

FILE-DEPENDENCIES

CONFIG-DATA=".\Test2.cfg"

SEQUENCE-DATA=".\Test2.seq"

END-FILE-DEPENDENCIES

// Crozzle Size. The number of rows and columns.

// This crozzle will have 10 rows and 15 columns.

CROZZLE-SIZE

SIZE=1,15

END-CROZZLE-SIZE

// Horizontal Sequence Data.

HORIZONTAL-SEQUENCES

SEQUENCE=ROBERT,LOCATION=1,2

SEQUENCE=OSCAR,LOCATION=1,11

SEQUENCE=AL,LOCATION=2,8

SEQUENCE=JILL,LOCATION=3,2

SEQUENCE=AL,LOCATION=3,7

SEQUENCE=GEORGE,LOCATION=4,10

SEQUENCE=MARY,LOCATION=6,4

SEQUENCE=ROSE,LOCATION=6,10

SEQUENCE=RON,LOCATION=8,4

SEQUENCE=RON,LOCATION=8,8

SEQUENCE=JACK,LOCATION=9,1

SEQUENCE=FRED,LOCATION=9,12

SEQUENCE=ANGELA,LOCATION=10,6

END-HORIZONTAL-SEQUENCES

// Vertical Sequence Data.

VERTICAL-SEQUENCES

SEQUENCE=JESSICA,LOCATION=3,2

SEQUENCE=BILL,LOCATION=1,4

SEQUENCE=MARK,LOCATION=6,4

SEQUENCE=BRENDA,LOCATION=5,6

SEQUENCE=ALAN,LOCATION=2,8

SEQUENCE=ROSE,LOCATION=7,9

SEQUENCE=CHARLES,LOCATION=1,13

SEQUENCE=ROSE,LOCATION=1,15

SEQUENCE=WENDY,LOCATION=6,15

END-VERTICAL-SEQUENCES

# Appendix G – Test3.cfg

// Log File Configurations.

LOGFILE

// The default log file name.

DEFAULT=""

END-LOGFILE

// Letter Sequences Configurations.

// Limits on the number of unique letter sequences in the sequecnes file.

SEQUENCES-IN-FILE

MINIMUM=10

MAXIMUM=1

END-SEQUENCES-IN-FILE

// Crozzle Output Configurations.

CROZZLE-OUTPUT

INVALID-CROZZLE-SCORE="INVALID CROZZLE"

UPPERCASE=uppercase

STYLE="<style> table, td { border: 1px solid black; border-collapse: collapse; } td { width:24px; height:18px; text-align: center; } </style>"

BGCOLOUR-EMPTY-TD=777777

BGCOLOUR-NON-EMPTY-TD=#

END-CROZZLE-OUTPUT

// Crozzle Configurations.

// Limits on the size of the crozzle grid.

CROZZLESIZE

MINIMUM-ROWS=4

MAXIMUM-ROWS=400

MINIMUM-COLUMNS=4

MAXIMUM-COLUMNS=400

END-CROZZLESIZE

// Limits on the number of horizontal letter sequences and

// vertical letter sequences in a crozzle.

SEQUENCES-IN-CROZZLE

MINIMUM-HORIZONTAL=2

MAXIMUM-HORIZONTAL=1

MINIMUM-VERTICAL=2

MAXIMUM-VERTICAL=100

END-SEQUENCES-IN-CROZZLE

// Limits on the number of

// intersecting vertical sequences for each horizontal sequences, and

// intersecting horizontal sequences for each vertical sequences.

INTERSECTIONS-IN-SEQUENCES

MINIMUM-HORIZONTAL=1

MAXIMUM-HORIZONTAL=100

MINIMUM-VERTICAL=2

MAXIMUM-VERTICAL=1

END-INTERSECTIONS-IN-SEQUENCES

// Limits on duplicate letter sequences in the crozzle.

DUPLICATE-SEQUENCES

MIN=0

MAX=0

END-DUPLICATE-SEQUENCES

// Limits on the number of valid groups.

VALID-GROUPS

MAXIMUM=1

MINIMUM=2

END-VALID-GROUPS

// Scoring Configurations

// Points per letter that is at the intersection of

// a horizontal and vertical sequence within the crozzle.

INTERSECTING-POINTS

AAA=1

B=

C,2

D=XXXX

E=1

F=2

G=2

H=2

I=1

J=4

K=4

L=4

M=4

N=4

O=1

P=8

Q=8

R=8

S=8

T=8

U=1

V=16

W=16

X=32

Y=32

Z=64

END-INTERSECTING-POINTS

// Points per letter that is not at the intersection of

// a horizontal and vertical sequence within the crozzle.

NON-INTERSECTING-POINTS

A=0

B=0

C=0

D=0

E=0

F=0

G=0

H=0

I=0

J=0

K=0

L=0

M=0

N=0

O=0

P=0

Q=0

R=0

S=0

T=0

U=0

V=0

W=0

X=0

Y=0

Z=0

END-NON-INTERSECTING-POINTS

# Appendix H – Test3.seq

"[a-zA-Z]{2,}",310,146,10960,11416

AL,10,2,141,153

AL,10,2,141,153

ANGELA\*,10,7,424,441

,10,0,0,10

\*\*\*,10,3,126,139

SIT323,10,6,392,408

Charles,10,7,706,723

FRED,10,4,289,303

GARY,10,4,307,321

GEORGE,10,0,441,457

GRAHAM,10,6,444,448

HARRY,10,5,390,405

JACK,10,4,281,295

JESSICA,10,7,514,531

JILL,5,4,299,313

JOHNATHON,15,9,681,700

LARRY,10,5,394,409

MARK,10,4,299,313

MARY,10,4,313,327

MATTHEW,10,7,538,555

OSCAR,10,5,376,391

PAM,10,3,222,235

PETER,10,5,384,399

ROBERT,10,6,462,478

ROGER,10,5,383,398

RON,10,3,239,252

RONALD,10,6,448,464

ROSE,10,4,313,327

SUSAN,10,5,394,409

TOM,10,3,240,253

WENDY,10,5,391,406

# Appendix I – Test3.czl

// File dependencies.

FILE-DEPENDENCIES

CONFIG-DATA=".\Test3.cfg"

SEQUENCE-DATA=".\Test3.seq"

END-FILE-DEPENDENCIES

// Crozzle Size. The number of rows and columns.

// This crozzle will have 10 rows and 15 columns.

CROZZLE-SIZE

SIZE=10,y

END-CROZZLE-SIZE

// Horizontal Sequence Data.

HORIZONTAL-SEQUENCES

SEQUENCE=ROBERT,LOCATION=aaa,2

SEQUENCE=OSCAR,LOCATION=2,bbb

SEQUENCE=,LOCATION=3,2

SEQUENCE=MARY,6,4

LOCATION=6,11

SEQUENCE=GARY,LOCATION=8

SEQUENCE=?A?K?E,LOCATION=9,1

SEQUENCE=AL,LOCATION=9,14

END-HORIZONTAL-SEQUENCES

// Vertical Sequence Data.

VERTICAL-SEQUENCES

SEQUENCE=JESSICA,LOCATION=3,2

SEQUENCE=BILL,LOCATION=1.5,4

SEQUENCE=MARK,LOCATION=6,4

SEQUENCE=ROGER,LOCATION=6,6

SEQUENCE=HARRY,LOCATION=4,9

SEQUENCE=CHARLES,LOCATION=2,11

SEQUENCE=WENDY,LOCATION=2,15

END-VERTICAL-SEQUENCES