**Problem Statement**

Insurance companies find it time consuming and inefficient in dealing with customers by present means. Additionally, the companies need to quickly consider the data and results of the investigation carried out by the team of analysts contracted by the NMTRO in order to implement policy changes and premium increases if deemed necessary in time for the fiscal year’s quarter. The companies need to rely on user input from the customers themselves to obtain their information accurately and quickly and make necessary calculations for their insurance payments as well as be able to search for customer information quickly. The companies also need to calculate statistics from the input data that may be seen clearly and readily.

**Pseudo Code**

**1** BEGIN

**2** DISPLAY “---------------------------------------------------------“

**3** DISPLAY “<<<<<<INSURANCE COMPANY TOOL>>>>>>”

**4** DISPLAY “---------------------------------------------------------“

**5** f\_name:ARRAY = [1..30]

**6** l\_name:ARRAY = [1..30]

**7** sex:ARRAY = [1..30]

**8** car\_type:ARRAY = [1..30]

**9** car\_cat:ARRAY = [1..30]

**10** car\_mod:ARRAY = [1..30]

**11** insurance\_co:ARRAY = [1..30]

**12** toc:Array = [1..30]

**13** antitheft:ARRAY = [1..30]

**14** car\_val:ARRAY = [1..30]

**15** premium:ARRAY = [1..30]

**16** car\_age:ARRAY = [1..30]

**17** insurance\_pay:ARRAY = [1..30]

**18** percent\_antitheft = 0

**19** geicoprem = 1650

**20** statefarmprem = 2000

**21** progressiveprem = 2200

**22** nationwideprem = 3500

**23** found1 = false

**24** found2 = false

**25** found3 = false

**26** found4 = false

**27** v = 30

**28** u = 30

**29** s = 1

**30** m = 1

**31** research = 0

**32** search\_con = 0

**33** x = 0

**34** hval = 0

**35** tot\_prem = 0

**36** premium[x] = 0

**37** car\_age[x] = 0

**38** car\_val[x] = 0

**39** insurance\_pay[x] = 0

**40** no\_cars\_antitheft = 0

**41** no\_cars\_fc = 0

**42** DISPLAY “------------------------------------“

**43** DISPLAY “<<<<<RECORD ENTRY>>>>>”

**44** DISPLAY “------------------------------------“

**45** FOR x = 1 TO 30 DO

**46** DISPLAY “ENTER EVERYTHING IN CAPITAL LETTERS”

**47** DISPLAY “<<<<<<RECORD”, x, “OF”, x,”>>>>>>”

**48** DISPLAY “Enter first name.”

**49** READ f\_name[x]

**50** DISPLAY “Enter surname.”

**51** READ l\_name[x]

**52** DISPLAY “Enter gender. ‘M’ for male and ‘F’ for female”

**53** READ sex[x]

**54** DISPLAY “Enter the insurance company of the vehicle.”

**55** READ insurance\_co[x]

**56** IF insurance\_co[x] = GEICO THEN

**57** premium[x] = geicoprem

**58** ELSE

**59** IF insurance\_co[x] = PROGRESSIVE THEN

**60** premium[x] = progressiveprem

**61** ELSE

**62** IF insurance\_co[x] = STATEFARM THEN

**63** premium[x] = statefarmprem

**64** ELSE

**65** premium[x] = nationwideprem

**66** ENDIF

**67** DISPLAY “The insurance premium is $”, premium[x],”.”

**68** tot\_prem = tot\_prem + premium[x]

**69** DISPLAY “Input ‘FC’ for comprehensive coverage and ‘TPO’ for third party coverage.”

**70** READ toc[x]

**71** IF toc[x] = FC THEN

**72** no\_cars\_fc = no\_cars\_fc + 1

**73** ENDIF

**74** DISPLAY “State whether vehicle is: ‘CAR’, "SUV’, ‘VAN’, ‘TRUCK’, ‘BUS’ or ‘O’ for other.”

**75** READ car\_type[x]

**76** IF car\_type[x] = CAR THEN

**77** DISPLAY “Enter LCR-70”

**78** READ car\_cat[x]

**79** ELSE

**80** IF car\_type[x] = SUV or car\_type[x] = VAN THEN

**81** DISPLAY “Enter LCR-71”

**82** READ car\_cat[x]

**85** ELSE

**86** IF car\_type[x] = TRUCK or car\_type[x] = BUS THEN

**87** DISPLAY “Enter LCR-72”

**88** READ car\_cat[x]

**89** ELSE

**90** DISPLAY “Enter LCR-73”

**91** READ car\_cat[x]

**92** ENDIF

**93** DISPLAY “The vehicle category is “, car\_cat[x],”.”

**94** DISPLAY “Does the vehicle have an anti-theft device installed? State ‘YES’ or ‘NO’.”

**95** READ antitheft[x]

**96** IF antitheft[x] = YES THEN

**97** no\_cars\_antitheft = no\_cars\_antitheft + 1

**98** ENDIF

**99** DISPLAY “Enter the vehicle model”

**100** READ car\_mod[x]

**101** DISPLAY “Enter the age of the vehicle.”

**102** READ car\_age[x]

**103** DISPLAY “Enter the value of the vehicle.”

**104** READ car\_val[x]

**105** IF hval < car\_val[x] THEN

**106** hval = car\_val[x]

**107** ENDIF

**108** IF toc[x] = FC AND car\_age[x] <= 1 THEN

**109** insurance\_pay[x] =- 0.5 \* car\_val[x]

**110** ELSE

**111** IF toc[x] = FC AND car\_age[x] <= 4 THEN

**112** insurance\_pay[x] = 0.4 \* car\_val[x]

**113** ELSE

**114** IF toc[x] = FC AND car\_age[x] <= 7 THEN

**115** insurance\_pay[x] = 0.3 \* car\_val[x]

**116** ELSE

**117** IF toc[x] = FC AND car\_age[x] <= 10 THEN

**118** insurance\_pay[x] = 0.2 \* car\_val[x]

**119** ELSE

**120** IF toc[x] = FC AND car\_age[x] > 10 THEN

**121** insurance\_pay[x] = 0.1 \* car\_val[x]

**122** ELSE

**123** insurance\_pay[x] = 0

**124** ENDIF

**125** DISPLAY “The insurance payment on the vehicle is $”, insurance\_pay[x],”.”

**126** DISPLAY “------------------------------------------------------------------------------------“

**127** DISPLAY “Enter ‘1’ to clear record to make corrections or ‘2’ to proceed.”

**128** READ clearcorr

**129** IF clearcorr = 1 THEN

**130** no\_cars\_antitheft := no\_cars\_antitheft - 1;

**131** no\_cars\_fc := no\_cars\_fc - 1;

**132** tot\_prem := tot\_prem - premium[x];

**133** x = x -1

**134** ENDIF

**135** ENDFOR

**136** DISPLAY “-------------------------------------------------------------------------------“

**137** DISPLAY “<<<<<<<<<<<<<<<<<<<<STATISTICS>>>>>>>>>>>>>>>>>>>>”

**138** DISPLAY “-------------------------------------------------------------------------------“

**139** DISPLAY “The total number of customer records in the database is “,x,”.”

**140** DISPLAY “The number of comprehensively insured vehicles is “, no\_cars\_fc,”.”

**141** DISPLAY “The number of cars with anti-theft devices installed is “, no\_cars\_antitheft,”.”

**142** percent\_antitheft = “no\_cars\_antitheft/x” \* 100

**143** DISPLAY “The percentage of vehicles with anti-theft devices installed is “, percent\_antitheft,”.”

**144** DISPLAY “The highest vehicle value in the database is $”, h\_val,”.”

**145** DISPLAY “The total premium of all customers is $”, tot\_prem,”.”

**146** DISPLAY “---------------------------------------------------------------------------------------------------------------------“

**147** DISPLAY “---------------------------------------------------------------------------“

**148** DISPLAY “<<<<<<<<<<<<<<RECORD SEARCH>>>>>>>>>>>>>>>>>>>”

**149** DISPLAY ”----------------------------------------------------------------------------“

**150** WHILE search\_con = 0 OR search\_con = 1 OR search\_con = 2 DO

**151** DISPLAY “Enter ‘1’ to begin search, ‘2’ to review statistics or ‘3’ to quit.”

**152** READ search\_con

**153** IF search\_con = 1 THEN

**154** DISPLAY ” Enter the first name of the customer.”

**155** READ field1

**156** WHILE found1 = false AND m <= 30 DO

**157** IF f\_name[m] = field1 THEN

**158** found1 = true

**159** ENDIF

**160** ELSE

**161** m = m+1

**162** ENDWHILE

**163** DISPLAY “Enter the last name of the customer.”

**164** READ field2

**165** WHILE found2 = false AND s <= 30 DO

**166** IF l\_name[s] = field2 THEN

**167** found2 = true

**168** ENDIF

**169** ELSE

**170** s = s+1

**171** ENDWHILE

**172** WHILE found3 = false AND u <= 30 DO

**173** IF f\_name[u] = field1 THEN

**174** found3 = true

**175** ENDIF

**176** ELSE

**177** u = u-1

**178** ENDWHILE

**179** WHILE found4 = false AND v <= 30 DO

**180** IF l\_name[v] = field2 THEN

**181** found4 = true

**182** ENDIF

**183** ELSE

**184** v = v-1

**185** ENDWHILE

**186** IF m = s AND u = v AND found1 = true AND found2 = true AND found3 = true AND found4 = true AND m <> u AND s <> v THEN

**187** DISPLAY “There are at least two individuals with the name “,f\_name[m],” “,l\_name[m],” in the database.”

**188** DISPLAY “#FORWARD SEARCH RESULT#”

**189** DISPLAY “<<<<<<<<<<<<<<<<<<<RECORD NO. “,m,” OF “,x,”>>>>>>>>>>>>>>>>>>>>>>>>”

**190** DISPLAY “FIRST NAME: “,f\_name[m]

**191** DISPLAY “LAST NAME: “,l\_name[m]

**192** DISPLAY “SEX: ”,sex[m]

**193** DISPLAY “INSURANCE CO.: “,insurance\_co[m]

**194** DISPLAY “TYPE OF COVERAGE: “,toc[m]

**195** DISPLAY “PREMIUM: $”,premium[m]

**196** DISPLAY “VEHICLE CATEGORY: “,car\_cat[m]

**197** DISPLAY “VEHICLE MODEL: “,car\_mod[m]

**198** DISPLAY “VEHICLE AGE: “,car\_age[m]

**199** DISPLAY “VEHICLE VALUE: $”,car\_val[m]

**200** DISPLAY “ANTITHEFT INSTALLED: “,antitheft[m]

**201** DISPLAY “INSURANCE PAYMENT: $”,insurance\_pay[m]

**202** DISPLAY “----------------------------------------------------------------------------“

**203** READ

**204** DISPLAY “#REVERSE SEARCH RESULT#”

**205** DISPLAY “<<<<<<<<<<<<<<<<<<<RECORD NO. “,u,” OF “,x,”>>>>>>>>>>>>>>>>>>>>>>>>”

**206** DISPLAY “FIRST NAME: “,f\_name[u]

**207** DISPLAY “LAST NAME: “,l\_name[u]

**208** DISPLAY “SEX: ”,sex[u]

**209** DISPLAY “INSURANCE CO.: “,insurance\_co[u]

**210** DISPLAY “TYPE OF COVERAGE: “,toc[u]

**211** DISPLAY “PREMIUM: $”,premium[u]

**212** DISPLAY “VEHICLE CATEGORY: “,car\_cat[u]

**213** DISPLAY “VEHICLE MODEL: “,car\_mod[u]

**214** DISPLAY “VEHICLE AGE: “,car\_age[u]

**215** DISPLAY “VEHICLE VALUE: $”,car\_val[u]

**216** DISPLAY “ANTITHEFT INSTALLED: “,antitheft[u]

**217** DISPLAY “INSURANCE PAYMENT: $”,insurance\_pay[u]

**218** DISPLAY “----------------------------------------------------------------------------“

**219** READ

**220** ENDIF

**221** ELSE

**222** IF m = s AND found1 = true AND found2 = true THEN

**223** DISPLAY “<<<<<<<<<<<<<<<<<<<RECORD NO. “,m,” OF “,x,”>>>>>>>>>>>>>>>>>>>>>>>>”

**224** DISPLAY “FIRST NAME: “,f\_name[m]

**225** DISPLAY “LAST NAME: “,l\_name[m]

**226** DISPLAY “SEX: ”,sex[m]

**227** DISPLAY “INSURANCE CO.: “,insurance\_co[m]

**228** DISPLAY “TYPE OF COVERAGE: “,toc[m]

**229** DISPLAY “PREMIUM: $”,premium[m]

**230** DISPLAY “VEHICLE CATEGORY: “,car\_cat[m]

**231** DISPLAY “VEHICLE MODEL: “,car\_mod[m]

**232** DISPLAY “VEHICLE AGE: “,car\_age[m]

**233** DISPLAY “VEHICLE VALUE: $”,car\_val[m]

**234** DISPLAY “ANTITHEFT INSTALLED: “,antitheft[m]

**235** DISPLAY “INSURANCE PAYMENT: $”,insurance\_pay[m]

**236** DISPLAY “----------------------------------------------------------------------------“

**237** READ

**238** ENDIF

**239** ELSE

**240** DISPLAY “<<<NO RECORD FOUND>>>”

**241** READ

**242** ENDIF

**243** ELSE

**244** IF search\_con = 2 THEN

**245** DISPLAY “-------------------------------------------------------------------------------“

**246** DISPLAY “<<<<<<<<<<<<<<<<<<<<STATISTICS>>>>>>>>>>>>>>>>>>>>”

**247** DISPLAY “-------------------------------------------------------------------------------“

**248** DISPLAY “The total number of customer records in the database is “,x,”.”

**249** DISPLAY “The number of comprehensively insured vehicles is “, no\_cars\_fc,”.”

**250** DISPLAY “The number of cars with anti-theft devices installed is “, no\_cars\_antitheft,”.”

**251** percent\_antitheft = (no\_cars\_antitheft/x) \* 100

**252** DISPLAY “The percentage of vehicles with anti-theft devices installed is “, percent\_antitheft,”.”

**253** DISPLAY “The highest vehicle value in the database is $”, h\_val,”.”

**254** DISPLAY “The total premium of all customers is $”, tot\_prem,”.”

**255** DISPLAY “---------------------------------------------------------------------------------------------------------------------“

**256** ENDIF

**257** ELSE

**258** END

**259** ENDWHILE

**260** END

**Trace Tables**

**Declared Constants**

|  |  |  |  |
| --- | --- | --- | --- |
| **geicoprem** | **progressiveprem** | **nationwideprem** | **statefarmprem** |
| 1650.00 | 2200.00 | 2000.00 | 3500.00 |

**Procedure Input\_Dat**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **x** | **f\_name[x]** | **l\_name[x]** | **sex[x]** | **insurance\_co[x]** | **premium[x]** | **toc[x]** | **car\_type[x]** | **car\_cat[x]** | **antitheft[x]** | **car\_mod[x]** | **car\_age[x]** | **car\_val[x]** | **insurance\_pay[x]** | **hval** |
| 0 |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1 | CHESTER | ARKADAY | M | GEICO | geicoprem | FC | SUV | LCR-71 | YES | CAMI | 4 | 784380.00 | 313752.00 | 784380.00 |
| 2 | KARLA | GAGERIN | F | STATEFARM | statefarmprem | FC | CAR | LCR-70 | YES | PREVIA | 11 | 280500.00 | 28050.00 | 784380.00 |
| 3 | ROMARIO | MAXWELL | M | PROGRESSIVE | progressiveprem | FC | O | LCR-73 | YES | VEYNRON | 1 | 10000000.00 | 500000.00 | 10000000.00 |
| 4 | ANDREW | ROBERTS | M | GEICO | geicoprem | TPO | BUS | LCR-72 | NO | GRANDIS | 11 | 408000.00 | 0 | 10000000.00 |
| 5 | YENDI | SCNEIDER | F | GEICO | geicoprem | TPO | VAN | LCR-71 | NO | COROLLA | 24 | 357000.00 | 0 | 10000000.00 |
| 6 | LORNA | LANCER | F | NATIONWIDE | nationwideprem | FC | CAR | LCR-70 | YES | CRUISER | 11 | 459000.00 | 45900.00 | 10000000.00 |
| 7 | ROMARIO | MAXWELL | M | NATIONWIDE | nationwideprem | FC | BUS | LCR-72 | YES | COASTA | 5 | 560000.00 | 168000.00 | 10000000.00 |
| 8 | ERMA | PUYOL | F | NATIONWIDE | nationwideprem | FC | VAN | LCR-71 | NO | ALMERA | 7 | 318240.00 | 95472.00 | 10000000.00 |

|  |  |  |
| --- | --- | --- |
| **tot\_prem** | **no\_cars\_fc** | **no\_cars\_antitheft** |
|  |  |  |
| 1650.00 | 1 | 1 |
| 5150.00 | 2 | 2 |
| 7350.00 | 3 | 3 |
| 9000.00 | 3 | 3 |
| 10650.00 | 3 | 3 |
| 14150.00 | 4 | 4 |
| 17650.00 | 5 | 5 |
| 21150.00 | 6 | 5 |

**Search When There Are At Least Two Customers With The Same Name**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **m** | **s** | **u** | **v** | **field1** | **field2** | **found1** | **found2** | **found3** | **found4** | **f\_name[m]** | **l\_name[m]** | **sex[m]** | **insurance\_co[m]** | **premium[m]** | **car\_cat[m]** | **car\_mod[m]** |
| 1 | 1 | 8 | 8 | ROMARIO | MAXWELL | false | false | false | false |  |  |  |  |  |  |  |
| 2 | 2 | 7 | 7 | ROMARIO | MAXWELL | false | false | true | true |  |  |  |  |  |  |  |
| 3 | 3 | 7 | 7 | ROMARIO | MAXWELL | true | true | true | true | ROMARIO | MAXWELL | M | PROGRESSIVE | 2200.00 | LCR-73 | VEYNRON |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **car\_age[m]** | **ca\_val[m]** | **antitheft[m]** | **insurance\_pay[m]** | **f\_name[u]** | **l\_name[u]** | **sex[u]** | **insurance\_co[u]** | **premium[u]** | **car\_cat[u]** | **car\_mod[u]** | **car\_age[u]** | **car\_val[u]** |
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | ROMARIO | MAXWELL | M | NATIONWIDE | 3500.00 | LCR-72 | COASTA | 5 | 560000.00 |
| 1 | 10000000.00 | YES | 5000000.00 | ROMARIO | MAXWELL | M | NATIONWIDE | 3500.00 | LCR-72 | COASTA | 5 | 560000.00 |

|  |  |  |  |
| --- | --- | --- | --- |
| **antitheft[u]** | **insurance\_pay[u]** | **toc[m]** | **toc[u]** |
|  |  |  |  |
| YES | 168000.00 |  | FC |
| YES | 168000.00 | FC | FC |

**Search With One Return Value**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **m** | **s** | **field1** | **field2** | **found1** | **found2** | **f\_name[m]** | **l\_name[m]** | **sex[m]** | **insurance\_co[m]** | **premium[m]** | **car\_cat[m]** | **car\_mod[m]** | **car\_age[m]** | **car\_val[m]** | **antitheft[m]** | **toc[m]** |
| 1 | 1 | KARLA | GAGERIN | false | false |  |  |  |  |  |  |  |  |  |  |  |
| 2 | 2 | KARLA | GAGERIN | true | true | KARLA | GAGERIN | F | STATEFARM | 2000.00 | LCR-70 | PREVIA | 11 | 280500.00 | YES | FC |

|  |
| --- |
| **insurance\_pay[m]** |
|  |
| 28050.00 |

**Test Data**

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Name** | **Last Name** | **Gender** | **Car Model** | **Car Category** | **Car Age** | **Insurance Company** | **TOC** | **Anti-theft Installed (Y/N)** | **Premium ($)** | **Value ($)** | **Insurance Payment ($)** |
| Chester | Arkaday | M | Cami | LCR-71 | 4 | GEICO | FC | YES | 1,650.00 | 784,380.00 | 313,752.00 |
| Karla | Gagerin | F | Previa | LCR-70 | 11 | STATEFARM | FC | YES | 2,000.00 | 280,500.00 | 28,050.00 |
| Andrew | Roberts | M | Grandis | LCR-72 | 11 | GEICO | TPO | NO | 1,650.00 | 408,000.00 | 0 |
| Yendi | Scneider | F | Corolla | LCR-71 | 24 | GEICO | TPO | NO | 1,650.00 | 357,000.00 | 0 |
| Lorna | Lancer | F | Cruiser | LCR-70 | 11 | NATIONWIDE | FC | YES | 3,500.00 | 459,000.00 | 45,900.00 |
| Erma | Puyol | F | Almera | LCR-71 | 7 | NATIONWIDE | FC | NO | 3,500.00 | 318,240.00 | 95,472.00 |

**DATA OBTAINED FROM VICTIMS SHEET OF TASK C OF SPREADSHEET SECTION**

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **First Name** | **Last Name** | **Gender** | **Car Model** | **Car Category** | **Car Age** | **Insurance Company** | **TOC** | **Anti-theft Installed (Y/N)** | **Premium ($)** | **Value ($)** |
| Romario | Maxwell | M | Coasta | LCR-72 | 5 | NATIONWIDE | FC | YES | 3,500.00 | 560,000.00 |
| Romario | Maxwell | M | Veynron | LCR-73 | 1 | PROGRESSIVE | FC | YES | 2,200.00 | 10,000,000.00 |

**FICTICIOUS RECORDS FOR MYSELF TO TEST ADDITIONAL PROGRAM PATHWAYS**

**Source Code**

**PROGRAM** Insurance\_GTA;

**USES** crt;

{Author: Romario A. Maxwell

School: Campion College

Territory: Jamaica

Centre No.: 100016

Date:March 20, 2012

Program description: The program will prompt, accept and store insurance company

customers’ details, generate statistics from input data and calculate insurance

paymets. This program will also facilitate the search, retrieval and display of

a customer’s details.

}

**CONST**

geicoprem = 1650.00;

nationwideprem = 3500.00;

statefarmprem = 2000.00;

progressiveprem = 2200.00;

**VAR**

f\_name:**ARRAY**[1..30] of **STRING**;

l\_name:**ARRAY**[1..30] of **STRING**;

sex:**ARRAY**[1..30] of **STRING**;

car\_type:**ARRAY**[1..30] of **STRING**;

car\_cat:**ARRAY**[1..30] of **STRING**;

car\_mod:**ARRAY**[1..30] of **STRING**;

insurance\_co:**ARRAY**[1..30] of **STRING**;

toc:Array[1..30] of **STRING**;

antitheft:**ARRAY**[1..30] of **STRING**;

car\_val:**ARRAY**[1..30] of REAL;

premium:**ARRAY**[1..30] of REAL;

car\_age:**ARRAY**[1..30] of INTEGER;

insurance\_pay:**ARRAY**[1..30] of REAL;

x, m, s, no\_cars\_fc, optdatsearch, clearcorr, v, u, search\_con, error1, error2, error3, error4, error5, error6, research, no\_cars\_antitheft:INTEGER;

tot\_prem, percent\_antitheft, hval:REAL;

field1, str1, str2, str3, str4, str5, str6, field2:**STRING**;

found1, found2, found3, found4:BOOLEAN;

**PROCEDURE** Input\_Dat;

**BEGIN**

tot\_prem := 0;

premium[x] := 0;

car\_age[x] := 0;

car\_val[x] := 0;

insurance\_pay[x] := 0;

hval := 0;

no\_cars\_antitheft := 0;

no\_cars\_fc := 0;

x := 0;

error1 := 0;

error2 := 0;

error6 := 0;

clearcorr := 0;

str1 := ‘0’;

str2 := ‘0’;

str6 := ‘0’;

WRITELN(‘---------------------------------------------------------------------------------------’);

WRITELN(‘<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<RECORD ENTRY>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN(‘----------------------------------------------------------------------------------------’);

WRITELN;

**FOR** x:= 1 **TO** 30 **DO**

**BEGIN**

WRITELN('ENTER EVERYTHING IN CAPITAL LETTERS');

WRITELN;

WRITELN(‘<<<<<<<<<<<RECORD ‘,x,’ OF ‘,x,’>>>>>>>>>>>>>‘);

WRITELN;

WRITELN(‘Enter first name.’);

READLN(f\_name[x]);

WRITELN;

WRITELN(‘Enter surname.’);

READLN(l\_name[x]);

WRITELN;

WRITELN(‘Enter gender. Input “M” for male and “F” for female.’);

READLN(sex[x]);

**WHILE** ((sex[x] <> ‘M’) **AND** (sex[x] <> ‘F’)) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(sex[x]);

**END**;

WRITELN;

WRITELN(‘Enter the name of the insurance company for the vehicle.’);

READLN(insurance\_co[x]);

**WHILE** ((insurance\_co[x] <> ‘GEICO’) **AND** (insurance\_co[x] <> ‘STATEFARM’) **AND** (insurance\_co[x] <> ‘PROGRESSIVE’) **AND** (insurance\_co[x] <> ‘NATIONWIDE’)) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(insurance\_co[x]);

**END**;

**IF** insurance\_co[x] = ‘GEICO’ **THEN**

**BEGIN**

premium[x] := geicoprem;

**END**

**ELSE**

**IF** insurance\_co[x] = ‘STATEFARM’ **THEN**

**BEGIN**

premium[x] := statefarmprem;

**END**

**ELSE**

**IF** insurance\_co[x] = ‘PROGRESSIVE’ **THEN**

**BEGIN**

premium[x] := progressiveprem;

**END**

**ELSE**

**BEGIN**

premium[x] := nationwideprem;

**END**;

WRITELN;

WRITELN(‘The insurance premium is $’,premium[x]:4:2,’.’);

tot\_prem := tot\_prem + premium[x];

WRITELN;

WRITELN(‘Input “FC” for comprehensive coverage and “TPO” for third party coverage.’);

READLN(toc[x]);

**WHILE** ((toc[x] <> ‘FC’) **AND** (toc[x] <> ‘TPO’)) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(toc[x]);

**END**;

**IF** toc[x] = ‘FC’ **THEN**

no\_cars\_fc := no\_cars\_fc + 1;

WRITELN;

WRITELN(‘State whether vehicle is: “CAR”, “SUV”, “VAN”, “TRUCK”, “BUS” or “O” for other.’);

READLN(car\_type[x]);

**WHILE** ((car\_type[x] <> ‘CAR’) **AND** (car\_type[x] <> ‘SUV’) **AND** (car\_type[x] <> ‘VAN’) **AND** (car\_type[x] <> ‘TRUCK’) **AND** (car\_type[x] <> ‘BUS’) **AND** (car\_type[x] <> ‘O’)) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(car\_type[x]);

**END**;

WRITELN;

**IF** car\_type[x] = ‘CAR’ **THEN**

**BEGIN**

WRITELN(‘Enter “LCR-70”.’);

READLN(car\_cat[x]);

**WHILE** (car\_cat[x] <> ‘LCR-70’) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(car\_cat[x]);

**END**;

**END**

**ELSE**

**IF** ((car\_type[x] = ‘SUV’) or (car\_type[x] = ‘VAN’)) **THEN**

**BEGIN**

WRITELN(‘Enter “LCR-71”.’);

READLN(car\_cat[x]);

**WHILE** (car\_cat[x] <> ‘LCR-71’) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(car\_cat[x]);

**END**;

**END**

**ELSE**

**IF** ((car\_type[x] = ‘TRUCK’) or (car\_type[x] = ‘BUS’)) **THEN**

**BEGIN**

WRITELN(‘Enter “LCR-72”.’);

READLN(car\_cat[x]);

**WHILE** (car\_cat[x] <> ‘LCR-72’) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(car\_cat[x]);

**END**;

**END**

**ELSE**

**BEGIN**

WRITELN(‘Enter “LCR-73”.’);

READLN(car\_cat[x]);

**WHILE** (car\_cat[x] <> ‘LCR-73’) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(car\_cat[x]);

**END**;

**END**;

WRITELN;

WRITELN(‘The vehicle category is ‘,car\_cat[x],’.’);

WRITELN;

WRITELN(‘Does the vehicle have an anti-theft device installed? State “YES” or “NO”.’);

READLN(antitheft[x]);

**WHILE** ((antitheft[x] <> ‘YES’) **AND** (antitheft[x] <> ‘NO’)) **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid response.’);

WRITELN;

WRITELN(‘Re-enter the data correctly.’);

READLN(antitheft[x]);

**END**;

**IF** antitheft[x] = ‘YES’ **THEN**

no\_cars\_antitheft := no\_cars\_antitheft+1;

WRITELN;

WRITELN(‘Enter the vehicle model.’);

READLN(car\_mod[x]);

WRITELN;

WRITELN(‘Enter the age of the vehicle.’);

READLN(str1);

VAL(str1, car\_age[x], error1);

**WHILE** error1 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid data type entered.’);

WRITELN;

WRITELN(‘Re-enter data of the correct data type.’);

READLN(str1);

VAL(str1, car\_age[x], error1);

**END**;

WRITELN;

WRITELN(‘Enter the value of the vehicle.’);

READLN(str2);

VAL(str2, car\_val[x], error2);

**WHILE** error2 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid data type entered.’);

WRITELN;

WRITELN(‘Re-enter data of the correct data type.’);

READLN(str2);

VAL(str2, car\_val[x], error2);

**END**;

**IF** hval < car\_val[x] **THEN**

hval := car\_val[x];

**IF** ((toc[x] = ‘FC’) **AND** (car\_age[x] <= 1)) **THEN**

**BEGIN**

insurance\_pay[x] := 0.5\*car\_val[x];

**END**

**ELSE**

**IF** ((toc[x] = ‘FC’) **AND** (car\_age [x] <= 4)) **THEN**

**BEGIN**

insurance\_pay[x] := 0.4\*car\_val[x];

**END**

**ELSE**

**IF** ((toc[x] = ‘FC’) **AND** (car\_age[x] <= 7)) **THEN**

**BEGIN**

insurance\_pay[x] := 0.3\*car\_val[x];

**END**

**ELSE**

**IF** ((toc[x] = ‘FC’) **AND** (car\_age[x] <= 10)) **THEN**

**BEGIN**

insurance\_pay[x] := 0.2\*car\_val[x];

**END**

**ELSE**

**IF** ((toc[x] = ‘FC’) **AND** (car\_age[x] > 10)) **THEN**

**BEGIN**

insurance\_pay[x] := 0.1\*car\_val[x];

**END**

**ELSE**

**BEGIN**

insurance\_pay[x] := 0.00;

**END**;

WRITELN;

WRITELN(‘The insurance payment on the vehicle is $’,insurance\_pay[x]:9:2,’.’);

WRITELN(‘----------------------------------------------------------------------------’);

READLN;

WRITELN('Hit "1" to clear record to make corrections or "2" to proceed.');

READLN(str6);

VAL(str6, clearcorr, error6);

**WHILE** error6 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN('Invalid data type entered.');

WRITELN;

WRITELN('Re-enter data of the correct data type.');

READLN(str6);

VAL(str6, clearcorr, error6);

**END**;

**IF** clearcorr = 1 **THEN**

**BEGIN**

no\_cars\_antitheft := no\_cars\_antitheft - 1;

no\_cars\_fc := no\_cars\_fc - 1;

tot\_prem := tot\_prem - premium[x];

x := x - 1

**END**

**ELSE**

**BEGIN**

**END**;

WRITELN;

**END**;

**END**;

{This procedure allows insurance customer information to be input and stored

}

**Procedure** Stats;

**BEGIN**

percent\_antitheft := 0;

WRITELN(‘--------------------------------------------------------------------------------------’);

WRITELN(‘<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<STATISTICS>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN(‘---------------------------------------------------------------------------------------’);

WRITELN;

WRITELN(‘The total number of customer records stored in the database is ‘,x,’.’);

WRITELN;

WRITELN(‘The number of comprehensively insured vehicles is ‘,no\_cars\_fc,’.’);

WRITELN;

WRITELN(‘The number of cars with anti-theft devices installed is ‘,no\_cars\_antitheft,’.’);

WRITELN;

percent\_antitheft:=(no\_cars\_antitheft/x)\*100;

WRITELN(‘The percentage of vehicles with anti-theft devices installed is ‘,percent\_antitheft:3:2,’%.’);

WRITELN;

WRITELN(‘The highest vehicle value in the database is $’,hval:9:2,’.’);

WRITELN;

WRITELN(‘The total premium of all customers is $’,tot\_prem:9:2,’.’);

WRITELN(‘----------------------------------------------------------------------------’);

READLN;

**END**;

{This procedure generates statistical information from the stored records

}

**Procedure** SearchAndRetrieve;

**BEGIN**

error4 := 0;

error3 := 0;

v := 30;

u := 30;

s := 1;

m := 1;

research := 0;

search\_con := 0;

str4 := ‘0’;

str3 := ‘0’;

found1 := false;

found2 := false;

found3 := false;

found4 := false;

WRITELN(‘-----------------------------------------------------------------------------------------’);

WRITELN(‘<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<<RECORD SEARCH>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN(‘-----------------------------------------------------------------------------------------’);

WRITELN;

WRITELN(‘Enter “1” to beginsearch, “2” to review statistics or “3” to quit.’);

READLN(str3);

VAL(str3, search\_con, error3);

**WHILE** error3 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid data type entered.’);

WRITELN;

WRITELN(‘Re-enter data of the correct data type.’);

READLN(str3);

VAL(str3, search\_con, error3);

**END**;

**IF** search\_con = 2 **THEN**

**BEGIN**

Stats;

SearchAndRetrieve;

**END**

**ELSE**

**IF** search\_con = 3 **THEN**

**BEGIN**

halt;

**END**;

WRITELN;

WRITELN(‘Enter the first name of the customer.’);

READLN(field1);

WRITELN;

**WHILE** (found1 = false) **AND** (m <= 30) **DO**

**BEGIN**

**IF** (f\_name[m] = field1) **THEN**

**BEGIN**

found1 := true;

**END**

**ELSE**

m := m+1;

**END**;

WRITELN(‘Enter the last name of the customer.’);

READLN(field2);

WRITELN;

**WHILE** (found2 = false) **AND** (s <= 30) **DO**

**BEGIN**

**IF** (l\_name[s] = field2) **THEN**

**BEGIN**

found2 := true;

**END**

**ELSE**

s := s+1;

**END**;

**WHILE** (found3 = false) **AND** (u <= 30) **DO**

**BEGIN**

**IF** (f\_name[u] = field1) **THEN**

**BEGIN**

found3 := true;

**END**

**ELSE**

u := u-1;

**END**;

**WHILE** (found4 = false) **AND** (v <= 30) **DO**

**BEGIN**

**IF** (l\_name[v] = field2) **THEN**

**BEGIN**

found4 := true;

**END**

**ELSE**

v := v-1;

**END**;

**IF** ((m = s) **AND** (u = v) **AND** (found1 = true) **AND** (found2 = true) **AND** (found3 = true) **AND** (found4 = true) **AND** (m <> u) **AND** (s <> v)) **THEN**

**BEGIN**

WRITELN(‘There are at least two individuals with the name ‘,f\_name[m],’ ‘,l\_name[m],’ in the database.’);

WRITELN;

WRITELN(‘#FORWARD SEARCH RESULT#’);

WRITELN;

WRITELN(‘<<<<<<<<<<<<<<<<<<<RECORD NO. ‘,m,’ OF ‘,x,’>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN;

WRITELN(‘FIRST NAME: ‘,f\_name[m]);

WRITELN;

WRITELN(‘LAST NAME: ‘,l\_name[m]);

WRITELN;

WRITELN(‘SEX: ‘,sex[m]);

WRITELN;

WRITELN(‘INSURANCE CO.: ‘,insurance\_co[m]);

WRITELN;

WRITELN(‘TYPE OF COVERAGE: ‘,toc[m]);

WRITELN;

WRITELN(‘PREMIUM: $’,premium[m]:4:2);

WRITELN;

WRITELN(‘VEHICLE CATEGORY: ‘,car\_cat[m]);

WRITELN;

WRITELN(‘VEHICLE MODEL: ‘,car\_mod[m]);

WRITELN;

WRITELN(‘VEHICLE AGE: ‘,car\_age[m]);

WRITELN;

WRITELN(‘VEHICLE VALUE: $’,car\_val[m]:9:2);

WRITELN;

WRITELN(‘ANTITHEFT INSTALLED: ‘,antitheft[m]);

WRITELN;

WRITELN(‘INSURANCE PAYMENT: $’,insurance\_pay[m]:9:2);

WRITELN(‘----------------------------------------------------------------------------’);

READLN;

WRITELN;

WRITELN(‘#REVERSE SEARCH RESULT#’);

WRITELN;

WRITELN(‘<<<<<<<<<<<<<<<<<<<RECORD NO. ‘,u,’ OF ‘,x,’>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN;

WRITELN(‘FIRST NAME: ‘,f\_name[u]);

WRITELN;

WRITELN(‘LAST NAME: ‘,l\_name[u]);

WRITELN;

WRITELN(‘SEX: ‘,sex[u]);

WRITELN;

WRITELN(‘INSURANCE CO.: ‘,insurance\_co[u]);

WRITELN;

WRITELN(‘TYPE OF COVERAGE: ‘,toc[u]);

WRITELN;

WRITELN(‘PREMIUM: $’,premium[u]:4:2);

WRITELN;

WRITELN(‘VEHICLE CATEGORY: ‘,car\_cat[u]);

WRITELN;

WRITELN(‘VEHICLE MODEL: ‘,car\_mod[u]);

WRITELN;

WRITELN(‘VEHICLE AGE: ‘,car\_age[u]);

WRITELN;

WRITELN(‘VEHICLE VALUE: $’,car\_val[u]:9:2);

WRITELN;

WRITELN(‘ANTITHEFT INSTALLED: ‘,antitheft[u]);

WRITELN;

WRITELN(‘INSURANCE PAYMENT: $’,insurance\_pay[u]:9:2);

WRITELN(‘----------------------------------------------------------------------------’);

READLN;

**END**

**ELSE**

**IF** ((m = s) **AND** (found1 = true) **AND** (found2 = true)) **THEN**

**BEGIN**

WRITELN(‘<<<<<<<<<<<<<<<<<<<RECORD NO. ‘,m,’ OF ‘,x,’>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN;

WRITELN(‘FIRST NAME: ‘,f\_name[m]);

WRITELN;

WRITELN(‘LAST NAME: ‘,l\_name[m]);

WRITELN;

WRITELN(‘SEX: ‘,sex[m]);

WRITELN;

WRITELN(‘INSURANCE CO.: ‘,insurance\_co[m]);

WRITELN;

WRITELN(‘TYPE OF COVERAGE: ‘,toc[m]);

WRITELN;

WRITELN(‘PREMIUM: $’,premium[m]:4:2);

WRITELN;

WRITELN(‘VEHICLE CATEGORY: ‘,car\_cat[m]);

WRITELN;

WRITELN(‘VEHICLE MODEL: ‘,car\_mod[m]);

WRITELN;

WRITELN(‘VEHICLE AGE: ‘,car\_age[m]);

WRITELN;

WRITELN(‘VEHICLE VALUE: $’,car\_val[m]:9:2);

WRITELN;

WRITELN(‘ANTITHEFT INSTALLED: ‘,antitheft[m]);

WRITELN;

WRITELN(‘INSURANCE PAYMENT: $’,insurance\_pay[m]:9:2);

WRITELN(‘----------------------------------------------------------------------------’);

READLN;

**END**

**ELSE**

**BEGIN**

WRITELN(‘<<<NO RECORD FOUND>>>‘);

READLN;

**END**;

WRITELN(‘Enter “1” to do another search, “2” to review the statistics or “3” to quit.’);

READLN(str4);

VAL(str4, research, error4);

**WHILE** error4 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid data type entered.’);

WRITELN;

WRITELN(‘Re-enter data of the correct data type.’);

READLN(str4);

VAL(str4, research, error4);

**END**;

**IF** research = 1 **THEN**

**BEGIN**

SearchAndRetrieve;

**END**

**ELSE**

**IF** research = 2 **THEN**

**BEGIN**

Stats;

SearchAndRetrieve;

**END**

**ELSE**

**BEGIN**

halt;

**END**;

**END**;

{This procedure allows a specific customer’s record to be searched for, retrieved and returned

}

**PROCEDURE** Splash;

**BEGIN**

WRITELN(‘-----------------------------------------------------------------------------------------’);

WRITELN(‘<<<<<<<<<<<<<<<<<<<<<<<<<INSURANCE COMPANY TOOL>>>>>>>>>>>>>>>>>>>>>>>>>>>>>‘);

WRITELN(‘-----------------------------------------------------------------------------------------’);

**END**;

**BEGIN**

str5 := ‘0’;

error5 := 0;

optdatsearch := 0;

Splash;

Input\_Dat;

Stats;

WRITELN(‘Enter “1” to search the database or “2” to quit.’);

READLN(str5);

VAL(str5, optdatsearch, error5);

**WHILE** error5 <> 0 **DO**

**BEGIN**

WRITELN;

WRITELN(‘Invalid data type entered.’);

WRITELN;

WRITELN(‘Re-enter data of the correct data type.’);

READLN(str5);

VAL(str5, optdatsearch, error5);

**END**;

**IF** optdatsearch = 1 **THEN**

**BEGIN**

SearchAndRetrieve;

**END**

**ELSE**

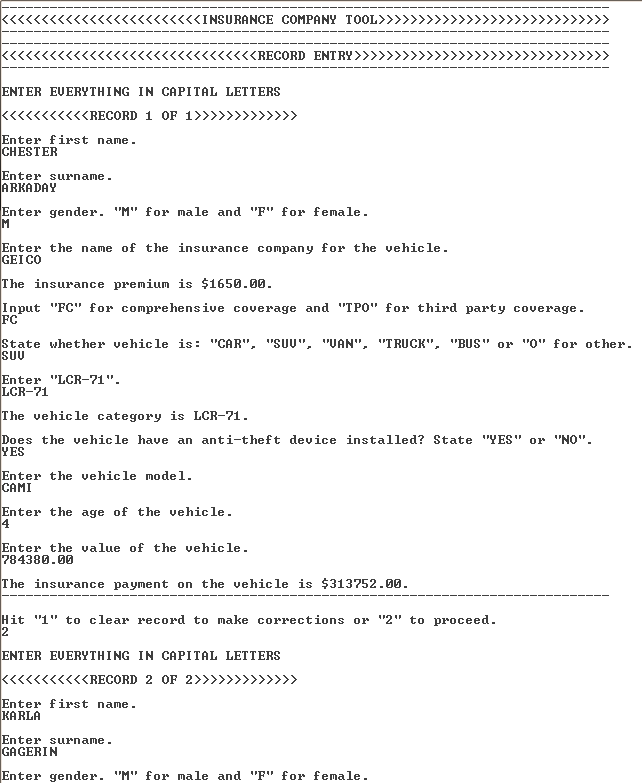
**BEGIN**

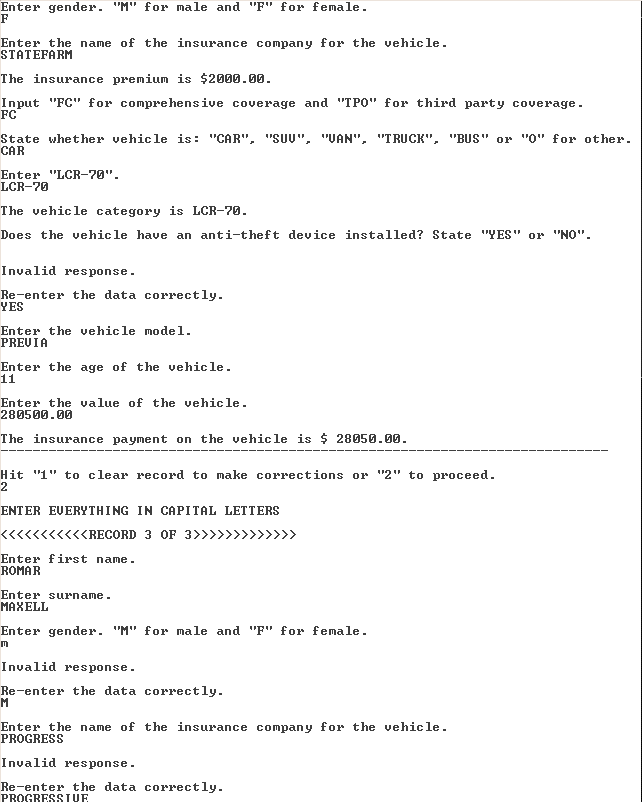
halt;

**END**;

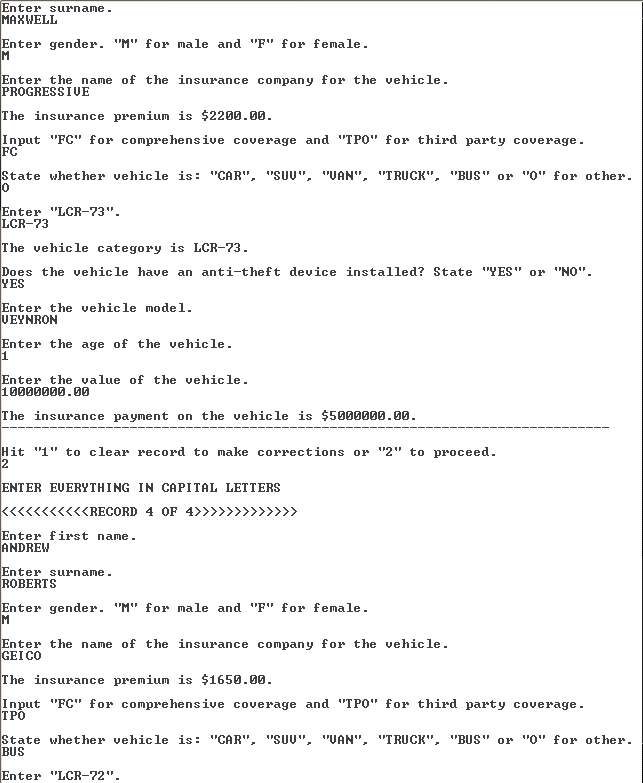
**END**.

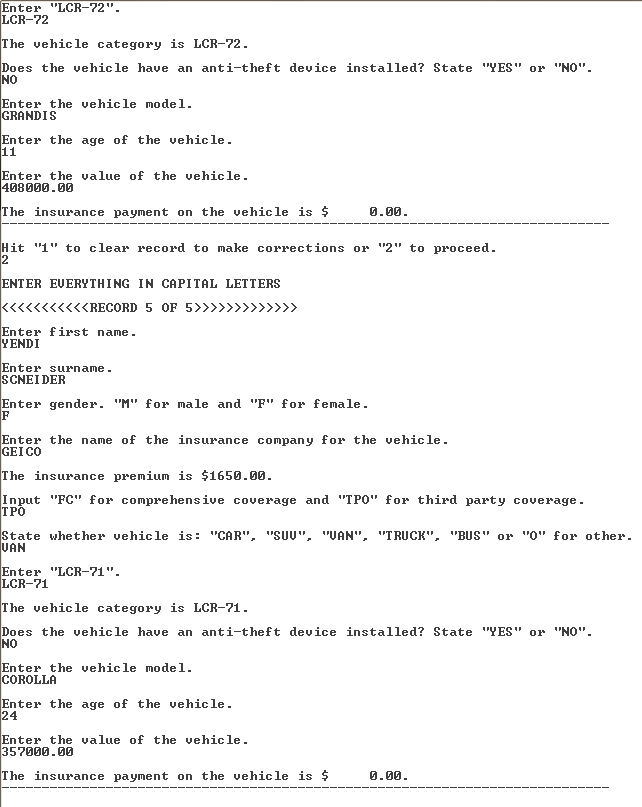
**Screenshots**

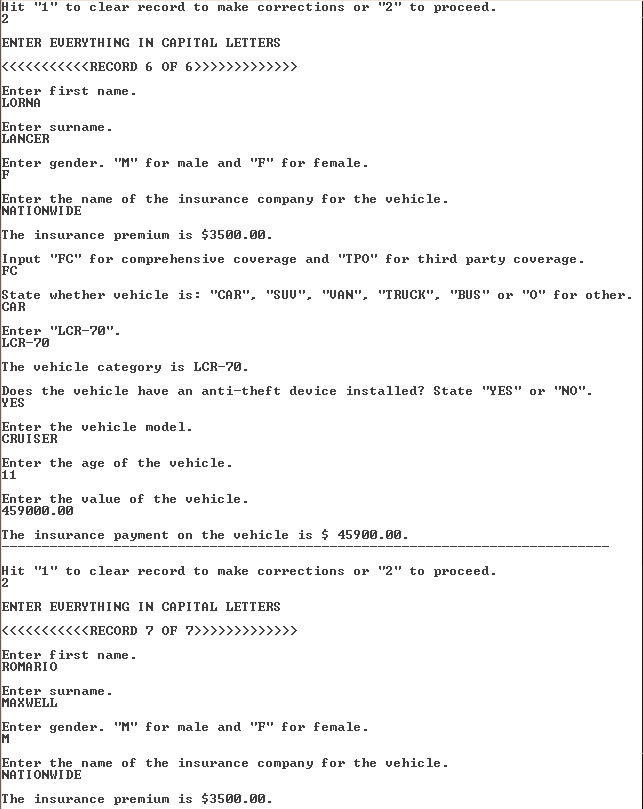
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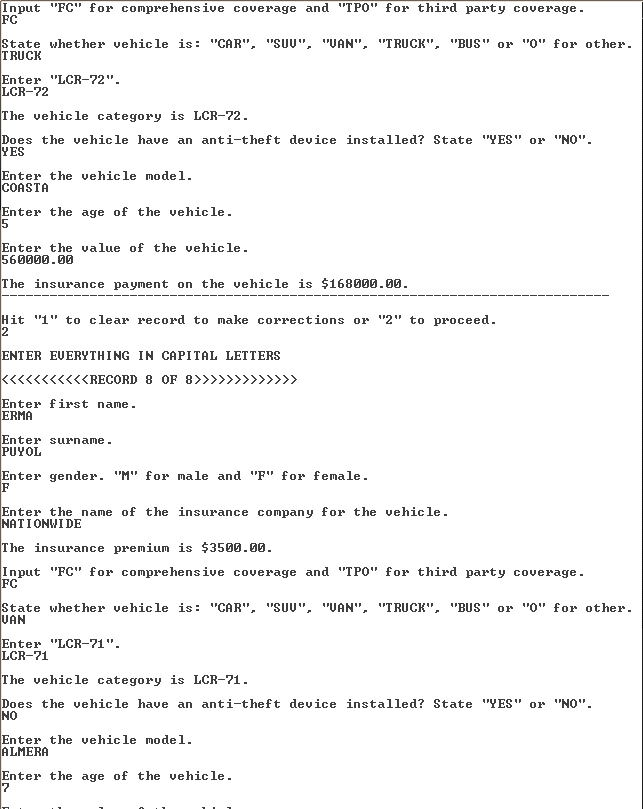
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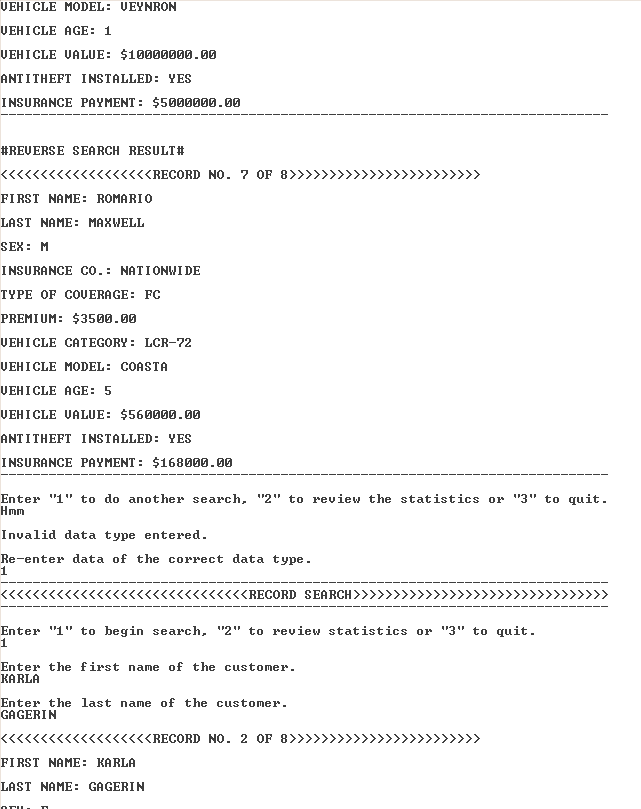
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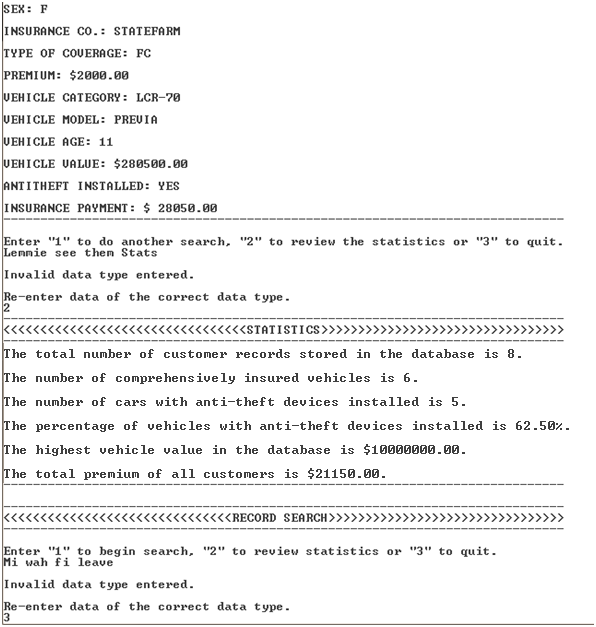
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