Province of the
EASTERN CAPE
EDUCATION

# NASIONALE SENIORSERTIFIKAAT

## GRAAD 12

## SEPTEMBER 2023

# INLIGTINGSTEGNOLOGIE V1
# NASIENRIGLYN

**PUNTE:** **150**

Hierdie nasienriglyn bestaan uit 20 bladsye.

| NAAM VAN LEERDER: | | | | |
|---|---|---|---|---|
| **TOTAAL VRAAG 1** | **TOTAAL VRAAG 2** | **TOTAAL VRAAG 3** | **TOTAAL VRAAG 4** | **TOTAAL** |
| **/40** | **/35** | **/35** | **/40** | **/150** |

| VRAAG 1 | | MAKS PUNTE | PUNTE BEHAAL |
|---|---|---|---|
| 1.1 | **KNOPPIE: [V1.1 – Bepaal koste]**<br><br>Gebruik 'n if / case stelling ✓<br>Bepaal die lisensietipe uit die radio group ✓<br>Vertoon die lisensietipe ✓ asook die koste van die lisensie in die Koste-label komponent ✓ | **4** | |
| | | | |
| 1.2.1 | **KNOPPIE: [V1.2.1 – Voeg voorste wiel by]**<br><br>Skep dinamiese vorm: shpVoorsteWiel ✓<br>Stel 'parent' van shpFrontWheel na die paneel pnlV1_2_Ligte ✓<br><br>Verander die eienskappe van shpVoorsteWiel:<br>Type → Circle ✓<br>Top → 25 ✓<br>Left → 35<br>Width → 50 ✓<br>Height → 50<br>Colour → White ✓ | **6** | |
| | | | |
| 1.2.2 | **KNOPPIE: [V1.2.2 – Lig landingsrat op]**<br><br>Verander die kleur van al drie vorme na Rooi ✓ | **1** | |
| | | | |
| 1.2.3 | **KNOPPIE: [V1.2.3 – Sit landingsrat neer]**<br><br>Verander die kleur van al drie vorme na Groen ✓ | **1** | |
| | | | |
| 1.2.4 | **KNOPPIE: [V1.2.4 – Toets landingsrat]**<br><br>Gebruik 'n case of if statement, bepaal die toestand van die ligte en skep die korrekte boodskap met 'n Message DLG<br><br>As al 3 ligte = Rooi ✓ → MessageDLG ✓ ('Katastrofiese fout') ✓<br>Else ✓<br>As al 3 ligte = Groen ✓ → MessageDLG('Veilig om te land') ✓<br>Else ✓<br>MessageDLG('Waarskuwing, nie veilig om te land nie') ✓ | **8** | |
| | | | |

| | | | |
|---|---|---|---|
| 1.3 | **KNOPPIE: [V1.3 Hoogtepunt van Daling]**<br><br>**Vertikale Spoed**<br>Kry BeginSpoed<br>Kry EindSpoed<br>Kry Wind<br>Kry Helling ✓<br><br>GemiddeldeSpoed = (BeginSpoed + EindSpoed) / 2 + Wind ✓✓<br>VertikaleSpoed_NM_P_Min = (tan(Helling * DEG_TO_RAD) * GemiddeldeSpoed) / 60 ✓✓<br>VertikaleSpoed := VertikaleSpoed_NM_P_Min * NM_TO_FT ✓<br><br>**Afstand**<br>Kry BeginHoogte<br>Kry EindHoogte ✓<br><br>DeltaHoogte = BeginHoogte – EindHoogte ✓<br>Afstand = (DeltaHoogte * FT_TO_NM) / tan(Helling * DEG_TO_RAD); ✓✓<br>DeltaSpoed = BeginSpoed - EindSpoed; ✓<br>Afstand = Afstand + ceil(DeltaSpoed / 10) ✓<br>Afstand = Afstand + ceil(Windspoed / 10) ✓<br><br>**Tyd**<br>Geskatte tyd = (Afstand / GemiddeldeSpoed) * 60 ✓<br><br>Maak rich edit skoon<br>Voeg by rich edit:<br>Vertikale Spoed: VertikaleSpoed (fpm) – *geformateer na 2 desimale* ✓✓<br>Afstand: Afstand (nm) – *geformateer na 2 desimale* ✓✓<br>Geskatte Tyd: Geskatte tyd (min) – *geformateer na 2 desimale* ✓✓ | **20** | |
| | **Vraag 1 Totaal** | **40** | |

| VRAAG 2 | | MAKS PUNTE | PUNTE BEHAAL |
|---|---|---|---|
| 2.1.1 | **Knoppie [V2.1.1]**<br>'SELECT Naam, Van, Ouderdom, Epos FROM tblVlieeniers WHERE Ouderdom > 35 AND Ouderdom < 43 ORDER BY Ouderdom DESC'<br><br>SELECT vier korrekte velde ✓<br>FROM korrekte tabel ✓<br>WHERE Ouderdom in die reeks van 36 (insl) en 42 (insl) ✓<br>ORDER BY korrekte veld DESC ✓ | **4** | |
| 2.1.2 | **Knoppie [V2.1.2]**<br>'SELECT * FROM tblVlugte WHERE Bestemming LIKE' + QuotedStr('%' + sLine + '%')<br><br>SELECT * (alle velde) ✓<br>FROM korrekte tabel ✓<br>WHERE Bestemming LIKE ✓<br>QuotedStr('%' + sLine + '%') ✓ | **4** | |
| 2.1.3 | **Knoppie [V2.1.3]**<br>'SELECT count(*) AS [Vlugte in September] FROM tblVlugte WHERE Month(VertrekDatum) = 9'<br><br>SELECT count(*) ✓AS [Vlugte in September]<br>FROM tblVlugte<br>WHERE Month ✓ (VertrekDatum) = 9 ✓ | **3** | |
| 2.1.4 | **Knoppie [V2.1.4]**<br>'SELECT Bestemming, Format(sum(VlieenierKostePerVlug), "Currency") AS [Vlieenierkoste], Format(sum(Vlugkoste), "Currency") AS [Vlugkoste], Format(sum(VlieenierKostePerVlug) + sum(VlugKoste), "Currency") AS [Totale Koste] FROM tblVlieeniers, tblVlugte WHERE tblVlieeniers.VlieenierID = tblVlugte.VlieenierID GROUP BY Bestemming'<br><br>SELECT Bestemming ✓ ,<br>Format ✓ (sum ✓ (VlieenierKostePerVlug) ✓, "Currency"✓) AS [Vlieenierkoste] ✓,<br>Format(sum(Vlugkoste), "Currency") AS [Vlugkoste] ✓,<br>Format((sum(VlieenierKostePerVlug) ✓ + sum(Vlugkoste) )✓,<br>"Currency") AS [Totale Koste]<br>FROM albei tabelle ✓ (tblVlieeniers, tblVlugte)<br>WHERE verbinding tussen tabelle ✓ (tblVlieeniers.VlieenierID = tblVlugte.VlieenierID)<br>GROUP BY Bestemming ✓ | **12** | |
| 2.1.5 | **Knoppie [V2.1.5]**<br>'UPDATE tblVlieeniers SET VlieenierKostePerVlug = VlieenierKostePerVlug * 1.07 WHERE LisensieTipe = "KVL"'<br><br>UPDATE korrekte tabel ✓<br>SET VlieenierKostePerVlug = VlieenierKostePerVlug * 1.07 ✓<br>WHERE LisensieTipe = "KVL" ✓ | **3** | |

| | | | |
|---|---|---|---|
| 2.2.1 | **Knoppie [V2.2.1]**<br>if FieldByName('Ouderdom').AsInteger < 21 then ✓<br>delete ✓<br>else<br>next; ✓ | **3** | |
| 2.2.2 | **Knoppie [V2.2.2]**<br>begin<br>if Bestemming = sBestemming then ✓<br>begin<br>if LisensieVereiste = 'KVL' then<br>inc(iKVL)<br>else<br>if LisensieVereiste = 'PVL' then ✓<br>inc(iPVL)<br>else<br>if LisensieVereiste = 'MVL' then<br>inc(iMVL);<br>if MedeVlieenier = True then ✓<br>inc(imedevlieenier)<br>end ✓ *NB: Medevlieenier moet binne die begin en end wees, anders tel dit op l die medevlieeniers vir al die bestemmings.*<br>Next ✓<br>end<br>Afvoer ('KVL: ' + IntToStr(iKVL) + #13 +<br>'PVL: ' + IntToStr(iPVL) + #13 +<br>'MVL: ' + IntToStr(iMVL) + #13 + ✓<br>'Medevlieenier nodig: ' + IntToStr(imedevlieenier)); | **6** | |
| | **Vraag 2 Totaal** | **35** | |

| VRAAG 3 | | MAKS PUNTE | PUNTE BEHAAL |
|---|---|---|---|
| 3.1.1 | **Konstruktor Create**<br>Korrekte opskrif en parameters ✓✓<br>fNaam := sNaam<br>fVervaardiger := sVervaadiger<br>fSpoed := rSpoed<br>fHoogte := rHoogte<br>fAfstand := rAfstand<br>fGewig := rGewig<br>fVlerkspan := rVlerkspan<br>fVuurkrag := iVuurkrag<br>fPrentjieNaam := sPrentjieNaam<br>fLand := sLand<br>fBeskrywing := sBeskrywing<br>Korrekte toekenning van al die attribute ✓✓✓ | **5** | |
| 3.1.2 | **Mutator Metode – setWaardes**<br>Korrekte opskrif (prosedure setWaardes) ✓<br>Korrekte omskakeling van elke attribuut ✓✓✓✓ | **5** | |
| 3.2.1 | **OnChange gebeurtenis van cmbV3_KiesVliegtuig**<br>1. Kry die gebruikers se keuse uit die combo box ✓<br>2. Toets om te sien of tekslêer bestaan en ken lêer toe. As die lêer nie bestaan nie, vertoon 'n boodskap en exit<br>AssignFile(MyFile, 'Vliegtuig_Lys.csv'); ✓<br>Try ✓<br>Reset(MyFile); ✓<br>except<br>ShowMessage('lêer nie gevind nie'); ✓<br>Exit; ✓<br>end; *Of alternatief: if not (fileexists(textfile) = true) then*<br>3. Lus deur die tekslêer totdat die vliegtuig gevind is.<br>bFound := False; ✓<br>while (not eof(MyFile)) ✓ AND (bFound = False) ✓ do<br>if pos(UpperCase(sSearch),UpperCase(sOneline)) ✓ <> 0 ✓ then<br>bFound := True; ✓<br>4. As die vliegtuig gevind is, dan:<br>Lus en onttrek die inligting van die tekslêer<br>//Vliegtuignaam<br>iPos := pos(',',sOneLine); ✓<br>sNaam := copy(sOneLine,1,iPos-1); ✓<br>delete(sOneLine,1,iPos); ✓<br>//Ander velde ✓✓<br>Instansieer (skep) die objek **objVliegtuig**.<br>objVliegtuig := TVliegtuig.Create ✓(sNaam, sVervaardiger,<br>rSpoed, rHoogte, rAfstand, rGewig, rVlerkspan,<br>iVuurkrag, sPrentjieNaam, sLand, sBeskrywing); ✓✓<br>5. Roep die setWaarde-metode ✓<br>6. Laai die objekdata in die komponente ✓✓✓✓ | **25** | |
| | **Vraag 3 Totaal** | **35** | |

| VRAAG 4 | | MAKS PUNTE | PUNTE BEHAAL |
|---|---|---|---|
| 4.1 | Kry die bestemming uit die combo box ✓<br>Ken die bestemmingskikking aan die ar2Bespreking toe ✓✓✓✓✓ | **6** | |
| | | | |
| 4.2 | 1. Kry die sitpleknommer ✓✓<br>Lus deur die skikking en bepaal of die sitplek bespreek is ✓✓<br>Vertoon 'n boodskap as die sitplek reeds bespreek is ✓<br><br>2. Bespreek die sitplek in ar2Bespreking ✓<br>Kry al die data ✓<br>Bepaal klas ✓<br>Bepaal prys ✓<br>If Besigheidsklas * 1.95 ✓<br>Vertoon opskrif Besprekinginligting ✓ in bold ✓<br>Vertoon besprekingskaartjie-inligting geformateer:<br>'Naam en Van: ' + #13#9 + sNaamVan + #13 + ✓<br>'Bestemming: ' + #13#9 + sBestemming + #13 +<br>'Datum en Tyd: ' + #13#9 + sDatum + #13 +<br>#9 + sTyd + ' vlug' + #13 +<br>'Klas: ' + #13#9 + sKlas + #13 +<br>'Sitpleknommer: ' + #13#9 + cCol ✓+ IntToStr(iRow + 1)✓+ #13 +<br>'Koste: ' + #13#9 + FloatToStrF✓ (rPrice,ffCurrency✓,10,2); | **17** | |
| | | | |
| 4.3 | 1. Kry die bestemming ✓<br><br>2. Lus deur ar2Bespreking en vermeerder die aantal passasiers:<br>Besigheidsklas<br>Lus deur Rye 0 to 1 ✓<br>Lus deur kolomme 0 to 4 ✓<br>if ar2Bespreking[Row,Col] = 'B' then ✓<br>vermeerder(besigheidsklas teller) ✓<br>en Ekonomiese Klas<br>Lus deur rye 2 tot 14<br>Lus deur kolomme 0 tot 4 } ✓<br>if ar2Bespreking[Row,Col] = 'B' then ✓<br>vermeerder(ekonomiese klas teller)<br><br>3. Bepaal koste vir besigheidsklas ✓✓ en ekonomiese klas ✓✓<br><br>4. Vertoon besprekinskaartjie-inligting geformateer<br>'Passasiers' + #13 +<br>#9 + 'Besigheidsklas: ' + IntToStr(iBusClass) + #13 + ✓<br>#9 + 'Ekonomiese klas: ' + IntToStr(iEcoClass) + #13 + ✓<br>#9 + 'Totaal: ' + IntToStr(iBusClass + iEcoClass) + #13#13 + ✓<br>'Koste' + #13 +<br>#9 + 'Besigheidsklas: ' + FloatToStrF(rBusPrice,ffCurrency,10,2) + #13 + ✓<br>#9 + 'Ekonomiese klas: ' + FloatToStrF(rEcoPrice,ffCurrency,10,2) + #13 +✓<br>#9 + 'Totale Koste: ' + FloatToStrF(rBusPrice + rEcoPrice,ffCurrency,10,2);✓ | **17** | |
| | **Vraag 4 Totaal** | **40** | |

## VOORBEELDE EN OPLOSSINGS

## VRAAG 1

```
//////////     40 punte     //////////

//////////     Vraag 1.1  –  4 punte     //////////
procedure TfrmQuestion1.btnQ1_1_CostClick(Sender: TObject);
begin
  case rgpQ1_1_License.ItemIndex of
    0 : lblQ1_1_Cost.Caption := 'Microlight Pilot License = R37 000';
    1 : lblQ1_1_Cost.Caption := 'Private Pilot License = R110 451';
    2 : lblQ1_1_Cost.Caption := 'Commercial Pilot License = R761 379';
  end;
end;


//////////     Vraag 1.2.1  –  6 punte     //////////
procedure TfrmQuestion1.btnQ1_2_1Click(Sender: TObject);
begin
  shpFrontWheel := TShape.Create(frmQuestion1);
  shpFrontWheel.Parent := pnlQ1_2_Lights;

  with shpFrontWheel do
    begin
      Shape := stCircle;
      Top := 25;
      Left := 35;
      Height := 50;
      Width := 50;
      Brush.Color := clWhite;
    end;
end;


//////////     Vraag 1.2.2  –  1 punt     //////////
procedure TfrmQuestion1.btnQ1_2_2_UpClick(Sender: TObject);
begin
  btnQ1_2_1.Click; //Provided code, DO NOT DELETE
  shpFrontWheel.Brush.Color := clRed;
  shpLeftWheel.Brush.Color  := clRed;
  shpRightWheel.Brush.Color := clRed;
end;


//////////     Vraag 1.2.3  –  1 Punt     //////////
procedure TfrmQuestion1.btnQ1_2_3_DownClick(Sender: TObject);
begin
  btnQ1_2_1.Click; //Provided code, DO NOT DELETE
  shpFrontWheel.Brush.Color := clGreen;
  shpLeftWheel.Brush.Color  := clGreen;
  shpRightWheel.Brush.Color := clGreen;
end;
```

Kopiereg voorbehou 

```
//////////     Vraag 1.2.4  –  8 punte     //////////
procedure TfrmQuestion1.btnQ1_2_4_TestClick(Sender: TObject);
begin
  btnQ1_2_1.Click;   //Provided code, DO NOT DELETE
  RandomColours;   //Provided code, DO NOT DELETE

  if (shpFrontWheel.Brush.Color = clRed) AND
     (shpLeftWheel.Brush.Color = clRed) AND
     (shpRightWheel.Brush.Color = clRed) then
        MessageDLG('Catastrophic failure!',MTError,[MBOk],0)
  else
  if (shpFrontWheel.Brush.Color = clGreen) AND
     (shpLeftWheel.Brush.Color = clGreen) AND
     (shpRightWheel.Brush.Color = clGreen) then
        MessageDLG('Safe to land',MTInformation,[MBOk],0)
  else
     MessageDLG('Caution, not safe to land',MTInformation,[MBOk],0);

ALTERNATIEWE OPLOSSING
var
  iFront, iLeft, iRight, iTotal : Integer;

  iFront := 0;
  iLeft  := 0;
  iRight := 0;
  iTotal := 0;
  if shpFrontWheel.Brush.Color = clGreen then
    iFront := 1;
  if shpLeftWheel.Brush.Color = clGreen then
    iLeft := 1;
  if shpRightWheel.Brush.Color = clGreen then
    iRight := 1;

  iTotal := iFront + iLeft + iRight;
  case iTotal of
    0      : MessageDLG('Catastrophic failure!',MTError,[MBOk],0);
    1,2    : MessageDLG('Caution, not safe to land',MTInformation,[MBOk],0);
    3      : MessageDLG('Safe to land',MTInformation,[MBOk],0);
  end;
end;
```

```
//////////   Vraag 1.3  -  20 Punte    //////////
procedure TfrmQuestion1.Q1_3_TopOfDescentClick(Sender: TObject);

const DEG_TO_RAD = 0.0174532925;
const NM_TO_FT = 6076.11549;
const FT_TO_NM = 1 / NM_TO_FT;

var
  rAverageSpeed, rStartSpeed, rEndSpeed, rVerticalSpeed, rWind   : Real;
  rGlideSlope, rVerticalSpeed_NM_P_Min                           : Real;
  rStartAltitude, rEndAltitude                                   : Real;
  rDistance, rDeltaAltitude, rDeltaSpeed                         : Real;
  rEstimatedTime                                                 : Real;

begin
//Vertical Speed
  rStartSpeed := StrToFloat(edtQ1_3_StartSpeed.Text);
  rEndSpeed := StrToFloat(edtQ1_3_EndSpeed.Text);
  rWind := StrToFloat(edtQ1_3_Wind.Text);
  rGlideSlope := StrToFloat(edtQ1_3_GlideSlope.Text);

  rAverageSpeed := (rStartSpeed + rEndSpeed) / 2 + rWind;
  rVerticalSpeed_NM_P_Min := (tan(rGlideSlope * DEG_TO_RAD) * rAverageSpeed) / 60;
  rVerticalSpeed := rVerticalSpeed_NM_P_Min * NM_TO_FT;

//Distance
  rStartAltitude := StrToFloat(edtQ1_3_StartAltitude.Text);
  rEndAltitude := StrToFloat(edtQ1_3_EndAltitude.Text);

  rDeltaAltitude := rStartAltitude - rEndAltitude;
  rDistance := (rDeltaAltitude * FT_TO_NM) / tan(rGlideSlope * DEG_TO_RAD);
  rDeltaSpeed := rStartSpeed - rEndSpeed;
  rDistance := rDistance + ceil(rDeltaSpeed / 10);
  rDistance := rDistance + ceil(rWind / 10);

//Time
  rEstimatedTime := (rDistance / rAverageSpeed) * 60;

  redQ1_3.Clear;
  redQ1_3.Lines.Add('Vertical Speed: ' + FloatToStrF(rVerticalSpeed,ffFixed,10,2) + ' (fpm)' +
                    #13 +
                   'Distance: ' + FloatToStrF(rDistance, ffFixed, 10, 2) + ' (nm)' + #13 +
                   'Estimated Time: ' + FloatToStrF(rEstimatedTime, ffFixed, 10, 2) + ' (min)');

end;
```

## VRAAG 2

////////// 35 punte //////////

////////// Vraag 2.1.1 – 4 punte //////////

```
procedure TfrmQuestion2.btnQuestion2_1_1Click(Sender: TObject);
// Provided code - DO NOT DELETE OR ALTER //
var
  sSQL1: String;
begin
  /// Enter your code below ///
  sSQL1 := 'SELECT FirstName, Surname, Age, Email ' +
           'FROM tblPilots ' +
           'WHERE Age > 35 AND Age < 43 ' +
           'ORDER BY Age DESC';

  // Provided code - DO NOT DELETE OR ALTER //
  dbCONN.runSQL(sSQL1);
  if length(sSQL1) <> 0 then
    SetGridColumnWidths(dbgSQL);
end;
```

////////// Vraag 2.1.2 - 4 punte //////////

```
procedure TfrmQuestion2.btnQuestion2_1_2Click(Sender: TObject);
// Provided code - DO NOT DELETE OR ALTER //
var
   sSQL2: String;
   sLine : String;
begin
  /// Enter your code below ///
  sLine := InputBox('Destination','Enter the destination','');

  sSQL2 := 'SELECT * ' +
           'FROM tblFlights ' +
           'WHERE Destination LIKE ' + QuotedStr('%' + sLine + '%');

  // Provided code - DO NOT DELETE OR ALTER //
  dbCONN.runSQL(sSQL2);
  if length(sSQL2) <> 0 then
    SetGridColumnWidths(dbgSQL);
end;
```

////////// Question 2.1.3 - 3 Marks //////////

```
procedure TfrmQuestion2.btnQuestion2_1_3Click(Sender: TObject);
// Provided code - DO NOT DELETE OR ALTER //
var
  sSQL3 : String;
begin
  /// Enter your code below ///
  sSQL3 := 'SELECT count(*) AS [Flights in September] ' +
           'FROM tblFlights ' +
```

```
        'WHERE Month(DepartureDate) = 9';

  // Provided code - DO NOT DELETE OR ALTER //
  dbCONN.runSQL(sSQL3);
  if length(sSQL3) <> 0 then
    SetGridColumnWidths(dbgSQL);
end;


//////////    Vraag 2.1.4  -   12 punte     //////////
procedure TfrmQuestion2.btnQuestion2_1_4Click(Sender: TObject);
// Provided code - DO NOT DELETE OR ALTER //
var
  sSQL4: String;
begin
  /// Enter your code below ///
  sSQL4 := 'SELECT Destination, ' +
          'Format(sum(PilotCostPerFlight), "Currency") AS [Pilot Cost], ' +
          'Format(sum(FlightCost), "Currency") AS [Flight Cost], ' +
          'Format(sum(PilotCostPerFlight) + sum(FlightCost), "Currency") AS [Total Cost] ' +
          'FROM tblPilots, tblFlights ' +
          'WHERE tblPilots.PilotID = tblFlights.PilotID ' +
          'GROUP BY Destination';

  // Provided code - DO NOT DELETE OR ALTER //
  dbCONN.runSQL(sSQL4);
  if length(sSQL4) <> 0 then
    SetGridColumnWidths(dbgSQL);
end;


//////////    Vraag 2.1.5  -   3 punte     //////////
procedure TfrmQuestion2.btnQuestion2_1_5Click(Sender: TObject);
// Provided code - DO NOT DELETE OR ALTER //
var
  sSQL5: String;
begin
  /// Enter your code below ///
  sSQL5 := 'UPDATE tblPilots ' +
          'SET PilotCostPerFlight = PilotCostPerFlight * 1.07 ' +
          'WHERE LicenseType = "CPL"';

 // Provided code - DO NOT DELETE OR ALTER //
 dbCONN.executeSQL(sSQL5,dbgPilots,dbgFlights,dbgSQL);
 if length(sSQL5) <> 0 then
   SetGridColumnWidths(dbgSQL);
end;
```

```
//////////    Vraag 2.2.1  -   3 punte     //////////
procedure TfrmQuestion2.btnQuestion2_2_1Click(Sender: TObject);
begin
  // Provided code - DO NOT DELETE OR ALTER //
  redQ2_Output.Clear;

with tblPilot do
    begin
      Open;
      redQ2_Output.Lines.Add('Pilots before regulation change: ' + IntToStr(RecordCount));
      First;
      while not (eof) do
        begin
          /// Enter your code below ///
          if FieldByName('Age').AsInteger < 21 then
            Delete
          else
            Next;
        end;
      redQ2_Output.Lines.Add('Pilots after regulation change: ' + IntToStr(RecordCount));
    end;
end;


//////////    Vraag 2.2.2  -   6 punte     //////////
procedure TfrmQuestion2.btnQuestion2_2_2Click(Sender: TObject);

// Provided code - DO NOT DELETE OR ALTER //
var
  sDestination : string;
  iCPL, iPPL, iMPL, iCoPilot : Integer;

begin

// Provided code - DO NOT DELETE OR ALTER //
  redQ2_Output.Clear;
  iCPL := 0;
  iPPL := 0;
  iMPL := 0;
  iCoPilot := 0;

 with tblFlight do
    begin
      Open;
      sDestination := cmbQ2_2_2_Destination.Text;
      redQ2_Output.SelAttributes.Style := [fsBold];
      redQ2_Output.Lines.Add(sDestination);
      redQ2_Output.Lines.Add('------------------------');
      First;
```

```
 while not (eof) do
       begin
         /// Enter your code below ///
         if FieldByName('Destination').AsString = sDestination then
           begin
             if FieldByName('LicenseRequired').AsString = 'CPL' then
               inc(iCPL)
               else
               if FieldByName('LicenseRequired').AsString = 'PPL' then
                 inc(iPPL)
                 else
                 if FieldByName('LicenseRequired').AsString = 'MPL' then
                   inc(iMPL);
             if (FieldByName('CoPilotRequired').AsBoolean = True) then
               inc(iCoPilot);
           end;
         Next;
       end;
     redQ2_Output.Lines.Add('CPL: ' + IntToStr(iCPL) + #13 +
                            'PPL: ' + IntToStr(iPPL) + #13 +
                            'MPL: ' + IntToStr(iMPL) + #13 +
                            'Co-Pilots required: ' + IntToStr(iCoPilot));
   end;
end;
```

## VRAAG 3

```
//////////     35 punte     //////////

//////////     Vraag 3.1.1 – 5 punte     //////////
constructor TAircraft.Create(sName, sManufacturer   : String;
                     rSpeed, rHeight, rRange, rWeight    : Real;
                     rWingspan                           : Real;
                     iFirepower                          : Integer;
                     sImageName, sCountry                : String;
                     sDescription                        : WideString);
begin
   fName         := sName;
   fManufacturer := sManufacturer;
   fSpeed        := rSpeed;
   fHeight       := rHeight;
   fRange        := rRange;
   fWeight       := rWeight;
   fWingspan     := rWingspan;
   fFirepower    := iFirepower;
   fImageName    := sImageName;
   fCountry      := sCountry;
   fDescription  := sDescription;
end;


//////////     Vraag 3.1.2  –  5 punte     //////////
procedure TAircraft.setValues;
begin
   fSpeed      := fSpeed * 1.852;          //Knots converted to KM/h
   fHeight     := fHeight * 0.3048;        //Feet converted to Meters
   fRange      := fRange * 1.60934;        //Miles converted to KM
   fWeight     := fWeight * 0.45359;       //Pounds converted to KG
   fWingspan   := fWingspan * 0.3048       //Feet converted to Meters
end;


//////////     Question 3.2.1 - 20 marks     //////////
procedure TfrmQuestion3.cmbQ3_SelectAircraftChange(Sender: TObject);
var
  sName, sManufacturer, sImageName, sCountry: String;
  rSpeed, rHeight, rRange, rWeight          : Real;
  rWingspan                                 : Real;
  iFirepower                                : Integer;
  sDescription                              : Widestring;
  MyFile                                    : Textfile;
  sOneLine                                  : String;
  sSearch                                   : String;
  iPos                                      : Integer;
  bFound                                    : Boolean;
```

```
begin
  sSearch := cmbQ3_SelectAircraft.Text;

  AssignFile(MyFile, 'Aircraft_List.csv');
  try
    Reset(MyFile);
  except
    ShowMessage('File not found');
    Exit;
  end;

  bFound := False;
  Readln(MyFile, sOneLine); //Skip the heading line in the textfile
  while (not eof(MyFile)) AND (bFound = False) do
    begin
      Readln(MyFile, sOneLine);
      if pos(UpperCase(sSearch),UpperCase(sOneline)) <> 0 then
        begin
        //Aircraft Name
          iPos := pos(',',sOneLine);
          sName := copy(sOneLine,1,iPos-1);
          delete(sOneLine,1,iPos);
        //Manufacturer Name
          iPos := pos(',',sOneLine);
          sManufacturer := copy(sOneLine,1,iPos-1);
          delete(sOneLine,1,iPos);
        //Speed
          iPos := pos(',',sOneLine);
          rSpeed := StrToFloat(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Range
          iPos := pos(',',sOneLine);
          rRange := StrToFloat(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Weight
          iPos := pos(',',sOneLine);
          rWeight := StrToFloat(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Height
          iPos := pos(',',sOneLine);
          rHeight := StrToFloat(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Wingspan
          iPos := pos(',',sOneLine);
          rWingspan := StrToFloat(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Firepower
          iPos := pos(',',sOneLine);
          iFirepower := StrToInt(copy(sOneLine,1,iPos-1));
          delete(sOneLine,1,iPos);
        //Image Name
          iPos := pos(',',sOneLine);
          sImageName := copy(sOneLine,1,iPos-1);
```

```
        delete(sOneLine,1,iPos);
      //Country
        iPos := pos(',',sOneLine);
        sCountry := copy(sOneLine,1,iPos-1);
        delete(sOneLine,1,iPos);
      //Description
        sDescription := sOneLine;
      objAircraft := TAircraft.Create(sName,sManufacturer,rSpeed,rHeight,rRange,
                          rWeight,rWingspan,iFirepower,sImageName,sCountry,sDescription);
        bFound := True;
    end;
  end;

  if bFound then
    begin
      objAircraft.SetValues;
      lblQ3_AircraftName.Caption := objAircraft.getName;
      lblQ3_Manufacturer.Caption := objAircraft.getManufacturer;
      imgQ3_CountryFlag.Picture.LoadFromFile('Images\Flags\' + objAircraft.getCountry);
      imgQ3_AircraftImage.Picture.LoadFromFile('Images\Aircraft\' +
            objAircraft.getImageName);
      lblQ3_AircraftDescription.Caption := objAircraft.getDescription;
      lblQ3_MaxSpeed.Caption := FloatToStrF(objAircraft.getSpeed,ffFixed,10,0);
      lblQ3_MaxHeight.Caption := FloatToStrF(objAircraft.getHeight,ffFixed,10,0);
      lblQ3_Range.Caption := FloatToStrF(objAircraft.getRange,ffFixed,10,0);
      lblQ3_MaxTakeoffWeight.Caption := FloatToStrF(objAircraft.getWeight,ffFixed,10,0);
      lblQ3_Wingspan.Caption := FloatToStrF(objAircraft.getWingspan,ffFixed,10,2);
      lblQ3_Firepower.Caption := IntToStr(objAircraft.getFirepower);
    end;
end;
```

## VRAAG 4

```
//////////     40 punte     //////////

//////////     Vraag 4.1 – 6 punte     //////////
procedure TfrmQuestion4.cmbQ4_1_DestinationChange(Sender: TObject);
var
  iRow, iCol : Integer;
begin
  case cmbQ4_1_Destination.ItemIndex of //Case or If Statement
    0 : ar2Booking := ar2Bloemfontein;
    1 : ar2Booking := ar2CapeTown;
    2 : ar2Booking := ar2Durban;
    3 : ar2Booking := ar2EastLondon;
    4 : ar2Booking := ar2Johannesburg;
  end;

//  //Alternate Solution
//  case cmbQ4_Destination.ItemIndex of  //Case or If Statement
//    0 : for iRow := 0 to 14 do
//          for iCol := 0 to 4 do
//            ar2Booking[iRow,iCol] := ar2Bloemfontein[iRow,iCol];
//    1 : for iRow := 0 to 14 do
//          for iCol := 0 to 4 do
//            ar2Booking[iRow,iCol] := ar2CapeTown[iRow,iCol];
//    2 : for iRow := 0 to 14 do
//          for iCol := 0 to 4 do
//            ar2Booking[iRow,iCol] := ar2Durban[iRow,iCol];
//    3 : for iRow := 0 to 14 do
//          for iCol := 0 to 4 do
//            ar2Booking[iRow,iCol] := ar2EastLondon[iRow,iCol];
//    4 : for iRow := 0 to 14 do
//          for iCol := 0 to 4 do
//            ar2Booking[iRow,iCol] := ar2Johannesburg[iRow,iCol];
//  end;

  //Provide Code - DO NOT DELETE
  PaintColour;
end;


//////////     Question 4.2 - 17 marks     //////////
procedure TfrmQuestion4.pnlQ4_2_BookClick(Sender: TObject);
var
  sDestination, sDate, sNameSur, sTime : String;
  sClass, sLine : String;
  rPrice : Real;
  iRow, iCol : Integer;
  cCol : Char;
begin
```

```
 redQ4_Output.Clear;
 iRow := sedQ4_RowNumber.Value;

case cmbQ4_ColNumber.ItemIndex of
  0 : begin
       iCol := 0;
       cCol := 'A';
      end;
  1 : begin
       iCol := 1;
       cCol := 'B';
      end;
  2 : begin
       iCol := 3;
       cCol := 'C';
      end;
  3 : begin
       iCol := 4;
       cCol := 'D';
      end;
 end;

 if ar2Booking[iRow-1,iCol] = 'B' then
  MessageDLG('Seat has already been booked',MTInformation,[MBOK],0)
 else
 begin
  ar2Booking[iRow-1,iCol] := 'B';
  sDestination := cmbQ4_1_Destination.Text;
  sDate := DateToStr(dtpQ4_Date.Date);
  sTime := cmbQ4_Time.Text;
  sNameSur := edtQ4_NameSur.Text;
  sClass := 'Economy Class';
  rPrice := arrPrice[cmbQ4_1_Destination.ItemIndex];
  case iRow of
    1,2 : begin
           rPrice := rPrice * 1.95;
           sClass := 'Business Class';
          end;
  end;
  sLine := 'Name and Surname: ' + #13#9 + sNameSur + #13 +
           'Destination: ' + #13#9 + sDestination + #13 +
           'Date and Time: ' + #13#9 + sDate + #13 +
              #9 + sTime  + ' flight' + #13 +
           'Cabin: ' + #13#9 + sClass + #13 +
           'Seat Number: ' + #13#9 + cCol + IntToStr(iRow + 1) + #13 +
           'Price: ' + #13#9 + FloatToStrF(rPrice,ffCurrency,10,2);
  redQ4_Output.SelAttributes.Style := [fsBold];
  redQ4_Output.Lines.Add('Booking Information' + #13);
  redQ4_Output.Lines.Add(sLine);
 end;
PaintColour;
end;
```

```
//////////     Vraag 4.3 – 17 punte     //////////
procedure TfrmQuestion4.pnlQ4_3_StatsClick(Sender: TObject);
var
  sLine : String;
  iRow, iCol : Integer;
  iBusClass, iEcoClass : Integer;
  rBusPrice, rEcoPrice : Real;
begin
  redQ4_Output.Clear;
  redQ4_Output.Paragraph.TabCount := 1;
  redQ4_Output.Paragraph.Tab[0] := 10;
  iBusClass := 0;
  iEcoClass := 0;
  rBusPrice := 0;
  rEcoPrice := 0;
  for iRow := 0 to 1 do
    for iCol := 0 to 4 do
      begin
        if ar2Booking[iRow,iCol] = 'B' then
          inc(iBusClass);
      end;

  for iRow := 2 to 14 do
    for iCol := 0 to 4 do
      begin
        if ar2Booking[iRow,iCol] = 'B' then
          inc(iEcoClass);
      end;
  rBusPrice := iBusClass * (arrPrice[cmbQ4_1_Destination.ItemIndex] * 1.95);
  rEcoPrice := iEcoClass * (arrPrice[cmbQ4_1_Destination.ItemIndex]);
  redQ4_Output.SelAttributes.Style := [fsBold];

  sLine := 'Passengers' + #13 +
           #9 + 'Business Class: ' + IntToStr(iBusClass) + #13 +
           #9 + 'Economy Class: ' + IntToStr(iEcoClass) + #13 +
           #9 + 'Total: ' + IntToStr(iBusClass + iEcoClass) + #13#13 +
           'Cost' + #13 +
           #9 + 'Business Class: ' + FloatToStrF(rBusPrice,ffCurrency,10,2) + #13 +
           #9 + 'Economy Class: ' + FloatToStrF(rEcoPrice,ffCurrency,10,2) + #13 +
           #9 + 'Total Cost: ' + FloatToStrF(rBusPrice + rEcoPrice,ffCurrency,10,2);

  redQ4_Output.Lines.Add('Statistics of Flight' + #13);
  redQ4_Output.Lines.Add(sLine);
end;
```

**TOTAAL: 150**

Kopiereg voorbehou