ANNEXURE F: SOLUTION FOR QUESTION 3

```
unit Question3_U;
interface

uses
  Windows, Messages, SysUtils, Variants, Classes, Graphics, Controls,
Forms,Dialogs, StdCtrls, Buttons, ExtCtrls, Grids, ComCtrls;
type
  TfrmQuestion3 = class(TForm)
    pnlBtn: TPanel;
    btnClose: TBitBtn;
    btnQues31: TButton;
    btnQues33: TButton;
    btnQues32: TButton;
    redQues3: TRichEdit;
    pnlHeading: TPanel;
    procedure FormCreate(Sender: TObject);
    procedure btnQues31Click(Sender: TObject);
    procedure btnQues32Click(Sender: TObject);
    procedure Display(iStartWeek: integer);
    procedure WriteToFile(iWeekNumber: integer);
    procedure btnQues33Click(Sender: TObject);
  private
    { Private declarations }
  public
    { Public declarations }
  end;

var
  frmQuestion3: TfrmQuestion3;

implementation
{$R *.dfm}
{$R+}
//========================================================================
//Provided code
//========================================================================
var
   arrDepartments : array[1..8] of String = (
           'PCs &Laptops', 'Tablets & eReaders', 'Software',
           'Printers, Toners and Ink', 'Cellphones', 'Games & Drones ',
           'Network equipment', 'Accessories');

arrSales: array [1..8, 1..6] of Real = (
  (935.89, 965.99, 4056.77,5023.89, 3802.66, 1146.98),
  (2667.78, 2491.78, 1989.65, 2647.88,1601.56, 1921.99),
  (6702.45, 4271.56, 3424.45, 3924.55, 3085.45,3359.77),
  (6662.34, 6658.45, 8075.43, 2360.66, 2635.44, 7365.69),
  (16405.33, 9741.37, 13381.56, 18969.76, 8604.55, 20207.56),
  (10515.29, 7582.66, 9856.56, 7537.68, 9115.67, 8401.55),
  (7590.99, 9212.65, 9070.98, 6439.99, 7984.88, 8767.45),
  (9220.65, 8097.99, 10067.44, 9960.87, 10109.56, 6571.66));

iStartWeek: Integer = 1;
```

```
//=====================================================================
// Question 3.1          (7 marks)
//=====================================================================
procedure TfrmQuestion3.btnQ3_1Click(Sender: TObject);
var
  iRow, iCol : Integer;
  sLine  : String;
begin
  Display(iStartWeek); // Display headings
end;
//=====================================================================
//Procedure Display
//=====================================================================
procedure TfrmQuestion3.Display(iStartWeek: Integer);
var
  sLine: String;
  iRow, iCol: Integer;
  I: Integer;
begin
  sLine := 'Department' + #9;
  for I := iStartWeek to iStartWeek + 5 do
    sLine := sLine + 'Week ' + IntToStr(I) + #9;
  redQ3.Lines.Add(sLine);
  for iRow := 1 to Length(arrDepartments) do
  begin
    sLine := arrDepartments[iRow] + #9;
    for iCol := 1 to 6 do
    begin
      sLine := sLine + FloatToStrF(arrSales[iRow, iCol], ffCurrency, 8,
               2) + #9;
    end;
    redQ3.Lines.Add(sLine);
  end;
end;
//=====================================================================
// Question 3.2          (14 marks)
//=====================================================================
procedure TfrmQuestion3.btnQ3_2Click(Sender: TObject);

 function AvgForWeekX(WeekNr: Integer): Real;
  // Local function
  var
    iRow: Integer;
    rSum, rAvg: Real;
  begin
    rSum := 0;
    for iRow := 1 to Length(arrDepartments) do
      rSum := rSum + arrSales[iRow, WeekNr];

    rAvg := rSum / Length(arrDepartments);
    Result := rAvg;
  end;

  var
   iRow, iCol, iCountWeek : Integer;
   rAvg : Real;
```

```
begin
  //Display the underperforming departments per week.
  redQ3.Clear;

  redQ3.Lines.Add('Underperforming departments per week:');
  for iCol := 1 to 6 do
  begin
    rAvg := AvgForWeekX(iCol);
    redQ3.Lines.Add('Week ' + IntToStr(iCol)
        + ':  ' + 'Avg sales: ' + FloatToStrF(rAvg, ffCurrency, 8, 2));
for iRow := 1 to Length(arrDepartments) do
    begin
      if arrSales[iRow, iCol] < rAvg then
      begin
        redQ3.Lines.Add(arrDepartments[iRow] + #9 +
        FloatToStrF(arrSales[iRow, iCol], ffCurrency, 8, 2));
      end;
    end; // for iRow
    redQ3.Lines.Add(' ');
  end; // for iCol
end;


//=====================================================================
// Question 3.3                      (16 marks)
//=====================================================================
procedure TfrmQuestion3.btnQ3_3Click(Sender: TObject);
var
  iRow, iCol: Integer;
begin
  WriteToFile(iStartWeek);
  Inc(iStartWeek);
  for iRow := 1 to Length(arrDepartments) do
    for iCol := 1 to 5 do
      arrSales[iRow, iCol] := arrSales[iRow, iCol + 1];
    for iRow := 1 to Length(arrDepartments) do
      arrSales[iRow, 6] := random(4501) + 500 + random;
  redQ3.Clear;
  Display(iStartWeek);
end;

procedure TfrmQuestion3.WriteToFile(iWeekNumber: integer);
var
  tFile: TextFile;
  iRow : Integer;
begin
 AssignFile(tFile, 'Week ' + IntToStr(iWeekNumber) + '.txt');
 Rewrite(tFile);
 for iRow := 1 to Length(arrDepartments) do
   Writeln(tFile, arrDepartments[iRow]+':'+
           FloatToStrF(arrVerkope[iRow, 1],ffCurrency, 6, 2));
CloseFile(tFile);
end;
```

```
//====================================================================
//Provided code
//====================================================================

procedure TfrmQuestion3.FormCreate(Sender: TObject);
var
  iCol : Integer;
begin
  //***   PROVIDED CODE>> DO NOT CHANGE !!!   ***
{$Region Provided Code}
  //Setup the columns in the richEdit
  frmQuestion3.Width := 780;
  redQues3.Paragraph.TabCount := 6;
  redQues3.Paragraph.Tab[0]    := 175;
  for iCol := 1 to 6 do
     redQues3.Paragraph.Tab[iCol] := 175 + (65*iCol);
  CurrencyString := 'R ';
  ThousandSeparator := ' ';
{$EndRegion}
end;

end.
```