{TERMINADO}

| program programa31;  const  n = 3; type   matriz = array[1..n, 1..n] of real;  // Carga la matriz con valores secuenciales procedure cargar(var m: matriz); var  i, j, p: integer; begin  p := 0;  for i := 1 to n do  for j := 1 to n do  begin  p :=random(2)+1;  m[i, j] := p;  end; end; //---------------------------------------------------------------------------------------------------------- // Imprime la matriz procedure imprimir(m:matriz); var  i, j: integer; begin  for i := 1 to n do  begin  for j := 1 to n do  begin  write(m[i, j]:10:2); // Imprime con un ancho de 10 caracteres  end;  writeln(); end; end; //---------------------------------------------------------------------------------------------------------- // Suma total columna procedure sumacolumna(m:matriz;c:integer;var sumatotal:real); var  i: integer; begin sumatotal:=0;  for i := 1 to n do  begin  begin     sumatotal:=sumatotal+m[i,c]; // Imprime con un ancho de 10 caracteres  end;  end; end;  //---------------------------------------------------------------------------------------------------------- // Suma total fila procedure sumafila(m:matriz;f:integer;var sumatotal:real); var  j: integer; begin sumatotal:=0;  for j:= 1 to n do  begin  begin  sumatotal:=sumatotal+m[f,j]; // Imprime con un ancho de 10 caracteres  end; end; end; //---------------------------------------------------------------------------------------------------------- // Suma total diagonalinv  procedure sumadiagonal(m:matriz;var sumatotal:real);  var  i: integer; begin  sumatotal:=0;  for i:= 1 to n do  begin   begin  sumatotal:=sumatotal+m[i,i]; // Imprime con un ancho de 10 caracteres  end; end; end; //---------------------------------------------------------------------------------------------------------- // Suma total diagonalinv procedure sumadiagonalinv (m:matriz;var sumatotal:real);  var  i: integer; begin sumatotal:=0;  for i:= 1 to n do  begin    begin  sumatotal:=sumatotal+m[i, n - i + 1]; // Imprime con un ancho de 10 caracteres  end; end; end;   function esmagico(m:matriz):boolean; var valor:real; i:integer; totaldiag:real; sumatotalfila:real; sumatotalcolumna:real; totaldiaginv:real;  begin i:=1; esmagico:=True; totaldiaginv:=0; sumatotalfila:=0; sumatotalcolumna:=0; totaldiag:=0;   sumadiagonal(m,totaldiag); valor:=totaldiag;   while (i<=n) and (esmagico) do  begin  sumafila(m,i,sumatotalfila);  sumacolumna(m,i,sumatotalcolumna);  sumadiagonalinv(m,totaldiaginv);  if (sumatotalfila=valor) and (sumatotalcolumna=valor) and (totaldiaginv=valor) then  i:=i+1  else  esmagico:=False;  end;  end;    // ---------------------------------PROGRAMA -------------------------------------------------------- var m:matriz; sumatotalcolumna,sumatotalfila,totaldiag,totaldiaginv:real; p:integer;    begin writeln('----------------------- TABLA ------------------------------'); p:=0;  cargar(m);  while esmagico(m)=False do   begin  p:=p+1; writeln('intento ',p);  cargar(m);  end;  imprimir(m);  writeln(esmagico(m)); writeln('--------------------------------------------------------------'); writeln('Ingrese fila');  sumafila(m,1,sumatotalfila); writeln('El total de la fila es',sumatotalfila:10:0);    writeln('--------------------------------------------------------------'); writeln('Ingrese columna');  sumacolumna(m,1,sumatotalcolumna); writeln('El total de la columna es',sumatotalcolumna:10:0); writeln('--------------------------------------------------------------');   sumadiagonal(m,totaldiag);  writeln('El total de la diagonal principal es',totaldiag:10:0);   sumadiagonalinv(m,totaldiaginv);  writeln('El total de la diagonal invertida es',totaldiaginv:10:0); |
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end.