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program Bac2016;

type tab_r = array [1..50] of real;

procedure SaisieCoord(var Xd, Yd: real);
begin
    Write('x ? '); Readln(Xd);
    Write('y ? '); Readln(Yd);
end;

function Recherche(v: real; t: tab_r; n: integer):integer;
var
    p, i: integer;
begin
    i := 1;
    p := 0;
    while (i <= n) and (p = 0) do
        begin
            if t[i] = v then
                p := i
            else
                i := i + 1;
            end;
            Recherche := p;
        end;
    end;

procedure Remplir(var Tx, Ty: tab_r; var n: integer; Xd, Yd: real);
var
    i: integer;
begin
    Repeat
        Write('Nombre de bateaux voisins ? '); Readln(n);
    Until (n in [1..50]);

    for i:=1 to n do begin
        Repeat
            Writeln('Coordonnées du bateau n°', i);
            SaisieCoord(Tx[i], Ty[i]);
            {not(Tx[i]=Xd and Ty[i]=Yd)}
            {
                Tx[i] et Ty[i] introuvables
                Tx[i] introuvable, Ty[i] existe
                Tx[i] existe, Ty[i] introuvable
            }
        Until ((Tx[i] <> Xd) or (Ty[i] <> Yd)) and
            ((Recherche(Tx[i], Tx, i-1) = 0) or (Recherche(Ty[i], Ty, i-1) = 0));
        end;
    end;

procedure CalcDist(var Td: tab_r; Tx, Ty: tab_r; n: integer; Xd, Yd: real);
var
    i: integer;
begin
    for i:=1 to n do
        Td[i] := sqrt(sqr(Tx[i]-Xd)+sqr(Ty[i]-Yd));
    end;

procedure TriSelonDist(var Td, Tx, Ty: tab_r; n: integer);

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var
  i, j: integer;
  aux: real;
begin
  for i:=1 to n-1 do
    for j:=1 to n-1 do
      if Td[j+1] < Td[j] then
        begin
          aux := Td[j]; Td[j] := Td[j+1]; Td[j+1] := aux;
          aux := Tx[j]; Tx[j] := Tx[j+1]; Tx[j+1] := aux;
          aux := Ty[j]; Ty[j] := Ty[j+1]; Ty[j+1] := aux;
        end;
      end;
    end;

  procedure Afficher(Tx, Ty: tab_r; n: integer);
  var
    i: integer;
  begin
    for i:=1 to n do
      begin
        write('(', Tx[i]:0:2, ', ', Ty[i]:0:2, ')');
        if i <> n then write('-');
      end;
      Writeln;
    end;

  var
    Xd, Yd: real;
    Tx, Ty, Td: tab_r;
    n: integer;
  begin
    SaisieCoord(Xd, Yd);
    Remplir(Tx, Ty, n, Xd, Yd);
    CalcDist(Td, Tx, Ty, n, Xd, Yd);
    TriSelonDist(Td, Tx, Ty, n);
    Afficher(Tx, Ty, n);
    Readln;
  end.

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