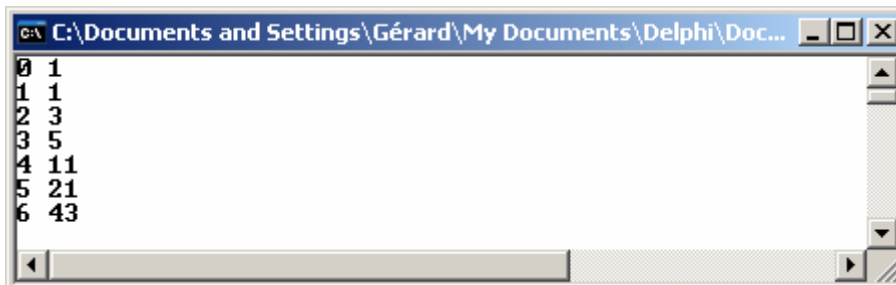


Question 1

```
1 function DICH0_I(LISTE:TListBox; CLE:string):integer;
2 var MILIEU,G,D:integer;
3 begin
4   G:=0;
5   D:=LISTE.Items.Count-1;
6   MILIEU:=(G+D) div 2;
7   while (CLE<>LISTE.Items[MILIEU]) and (G<=D) do begin
8     if CLE<LISTE.Items[MILIEU] then
9       D:=MILIEU-1
10    else
11      G:=MILIEU+1;
12    MILIEU:=(G+D) div 2
13  end;
14  if CLE=LISTE.Items[MILIEU] then
15    DICH0_I:=MILIEU
16  else
17    DICH0_I:=-1
18 end;
```

Question 2



Question 3

```
// (q2)
procedure RemplirParEntiers(n:integer;lbA:TListBox);
var i:integer;
begin
    lbA.Clear;
    for i:=2 to n do lbA.Items.Add(inttostr(i))
end;

// (q3)
procedure EliminerMultiples(n:integer;lbA:TListBox);
var i:integer;
begin
    i:=0;
    while i<lbA.Items.Count do
        begin
            if (strtoint(lbA.Items[i]) mod n =0) and (strtoint(lbA.Items[i]) <>n)
                then lbA.Items.Delete(i) else i:=i+1
            end;
        end;
end;

// (q5)
function expo(p:integer;n:integer):integer;
begin
    if (n mod p <> 0) or (n=0) then result:=0 else result:=1+ expo(p, n div p)
end;

// (q4)
procedure TForm1.btnPremClick(Sender: TObject);
var i,p,b:integer;
begin
    b:=strtoint(edtB.Text);
    RemplirParEntiers(b, lbPrem);
    i:=0;
    while strtoint(lbPrem.Items[i]) <=sqrt(b) do
        begin
            p:=strtoint(lbPrem.Items[i]);
            EliminerMultiples(p, lbPrem);
            i:=i+1
        end
    end;

// (q6)
procedure TForm1.btnFactClick(Sender: TObject);
var a,b,r,c:integer;
begin
    a:=strtoint(edtA.Text);
    b:=strtoint(edtB.Text);
    sgFact.RowCount:=lbPrem.Items.Count+1;
    sgFact.ColCount:=b-a+2;
    for c:=1 to sgFact.ColCount-1 do sgFact.Cells[c,0]:=inttostr(a+c-1);
    for r:=1 to sgFact.RowCount-1 do sgFact.Cells[0,r]:=lbPrem.Items[r-1];
    for c:=1 to sgFact.ColCount-1 do
        for r:=1 to sgFact.RowCount-1 do
            sgFact.Cells[c,r]:=
                inttostr(expo(strtoint(sgFact.Cells[0,r]),strtoint(sgFact.Cells[c,0])))
    end;
end;
```