ARRAY & RECORD (More..)

Illustration: Trans Airlines

- Suppose that Trans Airlines operates a single ten-passenger airplane. TA would like to modernize its operations and, as a first step, needs a program that will determine for each flight which seats are unoccupied so that they can be assigned.

Steps:

1. Examine the collection of seats to determine which of them are unoccupied
2. Reserve a seat
3. Cancel a seat assignment

Organize the data as a list of ten seats

- Define an enumerated type:

  Type

    SeatStatus = (Occupied, Unoccupied);

- Represent the list of seats

  Var

    Seat1, Seat2, …. , Seat10 : SeatStatus;

Sample algorithm: List Unoccupied Seat

```
If Seat1 = Unoccupied then
    Display 1
If Seat2 = Unoccupied then
    Display 2
If Seat3 = Unoccupied then
    Display 3
    .
    .
If Seat10 = Unoccupied then
    Display 10
```

Sample algorithm: Reserve a Seat

1. Set Done to false
2. If Seat1 = Unoccupied then do the following:
    a. Display ‘Do you wish to assign Seat #1?’
    b. Read Response from user
    c. If Response = ‘Y’ then do the following:
        Set Seat1 equal to Occupied
        Set Done equal to true
2. If not Done and Seat2 = Unoccupied then do the following:
    a. Display ‘Do you wish to assign Seat #2?’
    b. Read Response from user
    c. If Response = ‘Y’ then do the following:
        Set Seat2 equal to Occupied
        Set Done equal to true

so on….

Better way…

```
const
    MaxSeats = 10; (* upper limit on the number of seats *)
type
    SeatStatus = (Occupied, Unoccupied);
    SeatList = array[1…MaxSeats] of SeatStatus;
var
    Seat : SeatList;
```

Algorithm: List Unoccupied Seats

For Number ranging from 1 to MaxSeats do the following:

    If Seat[Number] = Unoccupied then

      Display Number

Algorithm: Reserve a Seat

Read Number of seat to be reserved

If Seat[Number] = Unoccupied then

    Set Seat[Number] equal to Occupied

    Else

    Display a message that the seat having this Number has already been assigned.

How to canceling a seat assignment?

- Simple way :
  - If Seat[Number] is Occupied then
  - Set Seat[Number] equal to Unoccupied

Your Task

Please make a pseudo code for this project.

Best practice

- Solving a problem involves:
  - manipulation of data
  - careful data organisation

    Requires:
    - identification of data collection items
    - Possible relationship among data
    - Basic operations that must be performaed on these items → ADS/ADT