11/26/14 09:59:43 /home-reseau/tchapon/4INFO/Prolog/tp9/tp9_squelette.pl

```
 1   /**
 2   TP 9 Prolog
 3
 4   @author Theo CHAPON
 5   @author Hassan EL OMARI ALAOUI
 6   @version Annee scolaire 2014/2015
 7   */
 8
 9
10   /*
11       Question 1.1 : combiner(Copains, Binomes), produire la liste Binomes de tous les
     binômes que l'on peut créer à partir de la liste Copains
12   */
13   /*
14   ["~/4INFO/Prolog/tp9/tp9_squelette.pl"].
15   */
16   combiner([_],[]).
17   combiner([A|Copains],Binomes):-
     creer(A,Copains,B),combiner(Copains,Binomes1),append(B,Binomes1,Binomes).
18
19   creer(_,[],[]).
20   creer(A,[X|Copains],[(A,X)|B]):- creer(A,Copains,B).
21
22
23   /*
24       Question 1.2: extraire(AllPossibleBinomes, NbBinomes, Tp, RemainingBinomes),
     extraire NbBinomes de la liste de tous les binomes
25   */
26
27   exist((A,B),[(X,Y)|Tp]):- A=X;A=Y;B=X;B=Y;exist((A,B),Tp).
28
29   extraire(AllPossibleBinomes,NbBinomes,Tp,RemainingBinomes):-
     extraire_aux(AllPossibleBinomes,NbBinomes,[],Tp,RemainingBinomes).
30
31   extraire_aux(AllPossibleBinomes,0,Tp,Tp,AllPossibleBinomes).
32
33   extraire_aux([(A,B)|AllPossibleBinomes],NbBinomes,Tp_acc,Tp,RemainingBinomes):-
     not(NbBinomes=0),not(exist((A,B),Tp_acc)),NbBinomes1 is NbBinomes -
     1,extraire_aux(AllPossibleBinomes,NbBinomes1,[(A,B)|Tp_acc],Tp,RemainingBinomes).
34
35
36
37   extraire_aux([(A,B)|AllPossibleBinomes],NbBinomes,Tp_acc,Tp,
     [(A,B)|RemainingBinomes]):-
     not(NbBinomes=0),extraire_aux(AllPossibleBinomes,NbBinomes,Tp_acc,Tp,RemainingBinomes
     ).
38
39
40   /*
41       Question 1.3: les_tps(Copains, Tps), fournir tous les binômages possibles pour
     les étudiants Copains
42   */
43   les_tps(Copains,[Tps_acc|Tps]):- combiner(Copains, Binomes),
     extraire(Binomes,2,Tps_acc,R),tps_aux(R,Tps),!.
44   tps_aux([],[]).
45   tps_aux(Binomes,[Tps_acc|Tps]):-extraire(Binomes,2,Tps_acc,R),tps_aux(R,Tps).
46
47
48   /* Test
49   Q1.1
50       combiner([pluto,riri,fifi,loulou],Binomes).
51         Binomes = [(pluto, riri), (pluto, fifi), (pluto, loulou), (riri, fifi),
     (riri, loulou), (fifi, loulou)]
```

```
52          Yes
53
54    Q1.2
55        combiner([pluto,riri,fifi,loulou],Binomes),extraire(Binomes,2,Tp,R).
56
57            Binomes = [(pluto, riri), (pluto, fifi), (pluto, loulou), (riri, fifi),
      (riri, loulou), (fifi, loulou)]
58            Tp = [(fifi, loulou), (pluto, riri)]
59            R = [(pluto, fifi), (pluto, loulou), (riri, fifi), (riri, loulou)]
60
61            Binomes = [(pluto, riri), (pluto, fifi), (pluto, loulou), (riri, fifi),
      (riri, loulou), (fifi, loulou)]
62            Tp = [(riri, loulou), (pluto, fifi)]
63            R = [(pluto, riri), (pluto, loulou), (riri, fifi), (fifi, loulou)]
64
65            Binomes = [(pluto, riri), (pluto, fifi), (pluto, loulou), (riri, fifi),
      (riri, loulou), (fifi, loulou)]
66            Tp = [(riri, fifi), (pluto, loulou)]
67            R = [(pluto, riri), (pluto, fifi), (riri, loulou), (fifi, loulou)]
68
69    Q1.3
70    les_tps([pluto,riri,fifi,loulou],Tps).
71        Tps = [[(fifi, loulou), (pluto, riri)], [(riri, loulou), (pluto, fifi)], [(riri,
      fifi), (pluto, loulou)]]
72        Yes (0.00s cpu)
73
74    */
```