

Concepts of Programming Languages, Spring term 2020
Test Cases
“E-Tourism Recommendation system”

Knowledge Base

offerMean(offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-02-12, 2020-03-12, period(2020-03-15, 2020-04-15), 10, 5), bus).

offerMean(offer(tabaa, [diving], 1000, 2020-02-12, 2020-03-12, period(2020-06-01, 2020-08-31), 10, 1), bus).

offerAccommodation(offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-02-12, 2020-03-12, period(2020-03-15, 2020-04-15), 10, 5), hotel).

offerAccommodation(offer(tabaa, [diving], 1000, 2020-02-12, 2020-03-12, period(2020-06-01, 2020-08-31), 10, 1), cabin).

customerPreferredActivity(customer(ahmed, aly, 1993-01-30, single, 0, student), diving, 100).

customerPreferredActivity(customer(ahmed, aly, 1993-01-30, single, 0, student), snorkeling, 100).

customerPreferredActivity(customer(ahmed, aly, 1993-01-30, single, 0, student), horseRiding, 20).

customerPreferredActivity(customer(mohamed, elkasad, 1999-01-30, single, 0, student), snorkeling, 60).

customerPreferredActivity(customer(mohamed, elkasad, 1999-01-30, single, 0, student), diving, 20).

customerPreferredActivity(customer(mohamed, elkasad, 1999-01-30, single, 0, student), horseRiding, 50).

customerPreferredMean(customer(ahmed, aly, 1993-01-30, single, 0, student), bus, 100).

customerPreferredMean(customer(mohamed, elkasad, 1999-01-30, single, 0, student), bus, 10).

customerPreferredAccommodation(customer(ahmed, aly, 1993-01-30, single, 0, student), hotel, 20).

customerPreferredAccommodation(customer(ahmed, aly, 1993-01-30, single, 0, student), cabin, 50).

customerPreferredAccommodation(customer(mohamed, elkasad, 1999-01-30, single, 0, student), hotel, 100).

customerPreferredAccommodation(customer(mohamed, elkasad, 1999-01-30, single, 0, student), cabin, 79).

Tests

The following tests were conducted on the above Knowledge Base.

a) possibleSubset/2

```
?- possibleSubset([1,2,3],R).  
R = [1, 2, 3] ;  
R = [1, 3, 2] ;  
R = [2, 1, 3] ;  
R = [2, 3, 1] ;  
R = [3, 1, 2] ;
```

```

R = [3, 2, 1] ;
R = [1, 2] ;
R = [2, 1] ;
R = [1, 3] ;
R = [3, 1] ;
R = [1] ;
R = [2, 3] ;
R = [3, 2] ;
R = [2] ;
R = [3] ;
R = [] .

```

b) choosePreferences/2

```

?-choosePreferences([dest(dahab), period(2020-04-01, 2020-06-15),accommodation(hotel),
activity([diving, snorkelling]), budget(5000)],R).

```

R should have every possible combination of preferences that could be chosen from the list with every combination of activities. here are some of the results.

```

R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel),
([diving, snorkelling]), budget(5000)];
R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel),
activity([diving, snorkelling])];
R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel),
activity([diving]), budget(5000)];
R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel), activity([diving])];
R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel), budget(5000)];
R = [dest(dahab), period(2020-4-1, 2020-6-15), accommodation(hotel)];
R = [dest(dahab), period(2020-4-1, 2020-6-15)];
R = [dest(dahab)];
R = [] ;
R = [budget(5000)]
R = [activity([diving])] ;
R = [activity([snorkelling]), budget(5000)]

```

c) preferenceSatisfaction/4

```

?- preferenceSatisfaction(offer(dahab, [diving, snorkeling, horseRiding], 10000,
2020-02-12, 2020-03-12, period(2020-03-15, 2020-04-15), 10, 5),
customer(ahmed, aly, 1993-01-30, single, 0, student),[dest(dahab),
period(2020-04-01, 2020-05-15), activity([diving]), budget(400000)], S).
S = 100 ;
false.

```

```

?- preferenceSatisfaction(offer(dahab, [diving, snorkeling, horseRiding], 10000,
2020-02-12, 2020-03-12, period(2020-03-15, 2020-04-15), 10, 5), customer(ahmed, aly,
1993-01-30, single, 0, student),[dest(dahab), period(2020-04-01, 2020-05-15),
activity([diving]), budget(400000),accommodation(hotel)], S).
S = 120 .

```

d) **overlapPeriod/2**

```
?- overlapPeriod(period(2010-8-12,2011-8-12),period(2010-9-12,2011-9-18)).
true.
```

```
?- overlapPeriod(period(2010-8-12,2011-8-12),period(2011-9-12,2011-9-18)).
false.
```

e) **getOffer/2**

```
?- getOffer([dest(dahab), period(2020-04-01, 2020-09-15), activity([diving]),
budget(70000)],0).
0 = offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-2-12, 2020-3-12,
period(2020-3-15, 2020-4-15), 10, 5)
```

```
?- getOffer([dest(dahab), period(2020-09-01, 2020-09-15), activity([diving]),
budget(4000)],0).
false.
```

```
?- getOffer([dest(dahab), period(2020-04-01, 2020-09-15), activity([diving]),
budget(70000),accommodation(cabin)],0).
false.
```

f) **recommendOfferForCustomer/3**

These are some of the results not all of them.

```
?- recommendOfferForCustomer([means(plane),accommodation(cabin),dest(dahab),
period(2020-04-01, 2020-09-15), activity([diving,snorkling]), budget(15000)],C,0).
C = [accommodation(cabin), period(2020-4-1, 2020-9-15), activity([diving]),
budget(15000)],
0 = offer(tabaa, [diving], 1000, 2020-2-12, 2020-3-12,
period(2020-6-1, 2020-8-31), 10, 4) ;
```

```
C = [dest(dahab), period(2020-4-1, 2020-9-15), activity([diving]), budget(15000)],
0 = offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-2-12, 2020-3-12,
period(2020-3-15, 2020-4-15), 10, 5) ;
```

```
C = [period(2020-4-1, 2020-9-15), activity([snorkeling]), budget(15000)],
0 = offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-2-12, 2020-3-12,
period(2020-3-15, 2020-4-15), 10, 5).
```

g) **recommendOffer/4**

These are some of the results not all of them.

```
?- recommendOffer([customer(ahmed, aly, 1993-01-30, single, 0, student),
customer(mohamed, elkasad, 1999-01-30, single, 0, student)],[[period(2020-9-01,
2020-9-15),
activity([snorkeling]), budget(15000)],[dest(dahab), activity([diving, snorkeling]),
budget(8000)]],0,Cust).
```

```
0 = offer(dahab, [diving, snorkeling, horseRiding], 10000, 2020-2-12, 2020-3-12,
period(2020-3-15, 2020-4-15), 10, 5),
```

```
Cust = [customer(ahmed, aly, 1993-1-30, single, 0, student), customer(mohamed, elkasad,
1999-1-30, single, 0, student)] ;
```

```
0 = offer(tabaa, [diving], 1000, 2020-2-12, 2020-3-12, period(2020-6-1, 2020-8-31), 10, 1),
Cust = [customer(mohamed, elkasad, 1999-1-30, single, 0, student)] .
```