

---

---

# Prolog 10 Desember 2020

— PBP —

---

---

# Soal 1

Write a program to replaces all occurrences of one item in a list with another. It should have four arguments. The list you wish to use. The item to replace. The item to replace it with, and the resulting list. Here are some example of its behaviour:

```
?- replace_all([a,b,a,c,a,d],a,mike,Result).
```

```
Result = [mike,b,mike,c,mike,d]
```

```
?- replace_all([a,b,a,c,a,d],b,foo,Result).
```

```
Result = [a,foo,a,c,a,d]
```

```
?- replace_all([a,b,a,c,a,d],prolog,logic,Result).
```

```
Result = [a,b,a,c,a,d]
```

# Soal 2

An arithmetic term is defined to be a number.

- A term **add(X,Y)** represents  $X+Y$
- While **multiply(X,Y)** represents  $X*Y$

Write program for the relation **numval(A,V)** which, given the arithmetic term **A**, computes the numerical value **V** that it represents.

**For example,** if  $A = \text{add}(\text{multiply}(3, \text{add}(2,5)), \text{add}(2,3))$

Then  $A$  represents  $(3*(2+5)) + (2+3)$

So  $V=26$

Create the predicates **numval** to solve the problem.

## Soal 3

terdapat List  $x = [1, 2]$  and List  $y = [3, 4, 5]$

buat program untuk menghasilkan List  $z = [1, 2, 3, 4, 5]$  : dari  $x$  dan  $y$ .

# Soal 4

buat program dengan goal variable P sehingga output yang dihasilkan sebagai berikut

$P = [i, \text{love}, \text{polban}] ;$

$P = [i, \text{polban}, \text{love}] ;$

$P = [\text{love}, i, \text{polban}] ;$

$P = [\text{love}, \text{polban}, i] ;$

$P = [\text{polban}, i, \text{love}] ;$

$P = [\text{polban}, \text{love}, i] ;$

# Soal 5

buatlah program dengan goal variable A, sehingga jika dijalankan input berikut :

`union([1,2,3,4],[1,a,b,4],A).`

output yang diberikan adalah

`A = [2,3,1,a,b,4]`

**Clue :**

`union([X|Y],Z,W) :- member(X,Z), union(Y,Z,W).`

# Soal 6

Buatlah sebuah program untuk menggandakan elemen sebuah list.

Example:

```
?- ganda(['2a','2b',2020],G).  
G = ['2a', '2a', '2b', '2b', 2020, 2020].
```

```
?- ganda([sayur,mayur,daging,ikan],G).  
G = [sayur, sayur, mayur, mayur, daging, daging, ikan, ikan].
```

```
?- ganda([satu,dua,tiga,empat],G).  
G = [satu, satu, dua, dua, tiga, tiga, empat, empat].
```

```
5 ?- ganda([satu,dua,tiga,empat,lima,enam,tujuh,delapan,sembilan],A);true.
```

```
A = [satu, satu, dua, dua, tiga, tiga, empat, empat, lima|...] [write]
```

```
A = [satu, satu, dua, dua, tiga, tiga, empat, empat, lima, lima, enam, enam, tujuh, tujuh, delapan, delapan, sembilan, sembilan]
```

# Soal 7

Buatlah sebuah program untuk menampilkan barisan bilangan bulat, dengan input elemen pertama dan elemen terakhir. (catatan untuk menampilkan seluruh output tekan w).

```
8 ?- baris(1,100,A).
A = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36,
37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71,
72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100] .

9 ?- baris(999,1050,B)
.
B = [999, 1000, 1001, 1002, 1003, 1004, 1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021
, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044,
1045, 1046, 1047, 1048, 1049, 1050] .

10 ?- baris(10000,10100,C).
C = [10000, 10001, 10002, 10003, 10004, 10005, 10006, 10007, 10008, 10009, 10010, 10011, 10012, 10013, 10014, 10015, 10016, 10017, 10018, 10
019, 10020, 10021, 10022, 10023, 10024, 10025, 10026, 10027, 10028, 10029, 10030, 10031, 10032, 10033, 10034, 10035, 10036, 10037, 10038, 10
039, 10040, 10041, 10042, 10043, 10044, 10045, 10046, 10047, 10048, 10049, 10050, 10051, 10052, 10053, 10054, 10055, 10056, 10057, 10058, 10
059, 10060, 10061, 10062, 10063, 10064, 10065, 10066, 10067, 10068, 10069, 10070, 10071, 10072, 10073, 10074, 10075, 10076, 10077, 10078, 10
079, 10080, 10081, 10082, 10083, 10084, 10085, 10086, 10087, 10088, 10089, 10090, 10091, 10092, 10093, 10094, 10095, 10096, 10097, 10098, 10
099, 10100] █
```

---