Executie: inmultireVM([2,-1,3], [[7,5,-1],[2,0,3],[2,1,4]], Rezultat_lista).

Rezultat_lista = [6,13,15]

---

3. Înmulțirea a două matrici de valori reale.

Fie $M_1 \rightsquigarrow$ LV (lista de vectori), $M_2 \rightsquigarrow$ LL (lista de liste)

$$\begin{bmatrix} M_1 \in \mathcal{M}_{n \times m}(\mathbb{R}) \\ M_2 \in \mathcal{M}_{m \times k}(\mathbb{R}) \end{bmatrix} \Rightarrow \boxed{RM = M_1 \cdot M_2} \text{ cu } RM \in \mathcal{M}_{n \times k}(\mathbb{R})$$

Exemplu:

$$\begin{matrix} v_1 \rightarrow \\ v_2 \rightarrow \\ v_3 \rightarrow \end{matrix} \begin{pmatrix} 2 & -1 & 3 \\ 1 & 0 & 2 \\ 4 & -1 & 2 \end{pmatrix} \cdot \begin{pmatrix} 7 & 2 & 2 \\ 5 & 0 & 1 \\ -1 & 3 & 4 \end{pmatrix} = \begin{pmatrix} 6 & 13 & 15 \\ 5 & 8 & 10 \\ 21 & 14 & 15 \end{pmatrix} \begin{matrix} \leftarrow HRM \\ \leftarrow TRM \end{matrix}$$

M_1 M_2 RM

Program Prolog

```
domains
    lista = real*
    matrice = lista*
predicates
    produs_scalar(lista, lista, real)
    inmultireVM(lista, matrice, lista)
    inmultireMM(matrice, matrice, matrice)
clauses
    produs_scalar([],[],0).
    produs_scalar([H1|T1],[H2|T2],RPS):- produs_scalar(T1,T2,RPS1),
                                         RPS is RPS1+H1*H2.

    inmultireVM(V,[],[]).
    inmultireVM(V,[HM|TM],[HR|TR]):-
        produs_scalar(V,HM,HR), inmultireVM(V,TM,TR).
    inmultireMM([],M2,[]).
    inmultireMM([HV|TV],M2,[HRM|TRM]):-
        inmultireVM(HV,M2,HRM),
        inmultireMM(TV,M2,TR).
```