Output with `k=1`

```
~/o/school_projects/P1-P1_CSC-371_F25   main >1 !2 ?2   java RegularOperations                                    ok   grade-analytics py
Enter k value for A^k operation: 1
=== 0.txt ===
A = {am,by}
B = {by,da,go}

AUB = {am,by,da,go}
A∘B = {amby,amda,amgo,byby,byda,bygo}
A^1 = {am,by}


=== 1.txt ===
A = {am,by,well,bye}
B = {bye,dap}

AUB = {am,by,bye,dap,well}
A∘B = {ambye,amdap,bybye,bydap,byebye,byedap,wellbye,welldap}
A^1 = {am,by,bye,well}


=== 2.txt ===
A = {a,b}
B = {c}

AUB = {a,b,c}
A∘B = {ac,bc}
A^1 = {a,b}


=== 3.txt ===
A = {x}
B = {y,z,w}

AUB = {w,x,y,z}
A∘B = {xw,xy,xz}
A^1 = {x}


=== 4.txt ===
A = {hello}
B = {world,test}

AUB = {hello,test,world}
A∘B = {hellotest,helloworld}
A^1 = {hello}


=== 5.txt ===
A = {ab,cd,ef}
B = {x,yz,123}

AUB = {123,ab,cd,ef,x,yz}
A∘B = {ab123,abx,abyz,cd123,cdx,cdyz,ef123,efx,efyz}
A^1 = {ab,cd,ef}


=== 6.txt ===
A = {0,1}
B = {a,bb,ccc}

AUB = {0,1,a,bb,ccc}
A∘B = {0a,0bb,0ccc,1a,1bb,1ccc}
A^1 = {0,1}
```

Output with `k=2`

```
~/ /school_projects/P1-P1_CSC-371_F25   main >1 !2 ?2   java RegularOperations                                    ok   grade-analytics py
Enter k value for A^k operation: 2
=== 0.txt ===
A = {am,by}
B = {by,da,go}

AUB = {am,by,da,go}
A∘B = {amby,amda,amgo,byby,byda,bygo}
A^2 = {amam,amby,byam,byby}


=== 1.txt ===
A = {am,by,well,bye}
B = {bye,dap}

AUB = {am,by,bye,dap,well}
A∘B = {ambye,amdap,bybye,bydap,byebye,byedap,wellbye,welldap}
A^2 = {amam,amby,ambye,amwell,byam,byby,bybye,byeam,byeby,byebye,byewell,bywell,wellam,wellby,wellbye,wellwell}


=== 2.txt ===
A = {a,b}
B = {c}

AUB = {a,b,c}
A∘B = {ac,bc}
A^2 = {aa,ab,ba,bb}


=== 3.txt ===
A = {x}
B = {y,z,w}

AUB = {w,x,y,z}
A∘B = {xw,xy,xz}
A^2 = {xx}


=== 4.txt ===
A = {hello}
B = {world,test}

AUB = {hello,test,world}
A∘B = {hellotest,helloworld}
A^2 = {hellohello}


=== 5.txt ===
A = {ab,cd,ef}
B = {x,yz,123}

AUB = {123,ab,cd,ef,x,yz}
A∘B = {ab123,abx,abyz,cd123,cdx,cdyz,ef123,efx,efyz}
A^2 = {abab,abcd,abef,cdab,cdcd,cdef,efab,efcd,efef}


=== 6.txt ===
A = {0,1}
B = {a,bb,ccc}

AUB = {0,1,a,bb,ccc}
A∘B = {0a,0bb,0ccc,1a,1bb,1ccc}
A^2 = {00,01,10,11}
```

Output with k=3

```
Enter k value for A^k operation: 3
=== 0.txt ===
A = {am,by}
B = {by,da,go}

AUB = {am,by,da,go}
A∘B = {amby,amda,amgo,byby,byda,bygo}
A^3 = {amamam,amamby,ambyam,ambyby,byamam,byamby,bybyam,bybyby}


=== 1.txt ===
A = {am,by,well,bye}
B = {bye,dap}

AUB = {am,by,bye,dap,well}
A∘B = {ambye,amdap,bybye,bydap,byebye,byedap,wellbye,welldap}
A^3 = {amamam,amamby,amambye,amamwell,ambyam,ambyby,ambybye,ambyeam,ambyeby,ambyebye,ambyewell,ambywell,amwellam,amwellby,amwellbye,amwellwell,
byamam,byamby,byambye,byamwell,bybyam,bybyby,bybybye,bybyeam,bybyeby,bybyebye,bybyewell,bybywell,byeamam,byeamby,byeambye,byeamwell,byebyam,bye
byby,byebybye,byebyeam,byebyeby,byebyebye,byebyewell,byebywell,byewellam,byewellby,byewellbye,byewellwell,bywellam,bywellby,bywellbye,bywellwel
l,wellamam,wellamby,wellambye,wellamwell,wellbyam,wellbyby,wellbybye,wellbyeam,wellbyeby,wellbyebye,wellbyewell,wellbywell,wellwellam,wellwellb
y,wellwellbye,wellwellwell}


=== 2.txt ===
A = {a,b}
B = {c}

AUB = {a,b,c}
A∘B = {ac,bc}
A^3 = {aaa,aab,aba,abb,baa,bab,bba,bbb}


=== 3.txt ===
A = {x}
B = {y,z,w}

AUB = {w,x,y,z}
A∘B = {xw,xy,xz}
A^3 = {xxx}


=== 4.txt ===
A = {hello}
B = {world,test}

AUB = {hello,test,world}
A∘B = {hellotest,helloworld}
A^3 = {hellohellohello}


=== 5.txt ===
A = {ab,cd,ef}
B = {x,yz,123}

AUB = {123,ab,cd,ef,x,yz}
A∘B = {ab123,abx,abyz,cd123,cdx,cdyz,ef123,efx,efyz}
A^3 = {ababab,ababcd,ababef,abcdab,abcdcd,abcdef,abefab,abefcd,abefef,cdabab,cdabcd,cdabef,cdcdab,cdcdcd,cdcdef,cdefab,cdefcd,cdefef,efabab,efa
bcd,efabef,efcdab,efcdcd,efcdef,efefab,efefcd,efefef}


=== 6.txt ===
A = {0,1}
B = {a,bb,ccc}

AUB = {0,1,a,bb,ccc}
A∘B = {0a,0bb,0ccc,1a,1bb,1ccc}
A^3 = {000,001,010,011,100,101,110,111}
```