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# target := [residue], template := [residue], structure := [(residueName,residue)]
BuildStructure(target,template,structure):
    i,j := 0
    target_structure := []
    WHILE i < length(target) and j < length(structure):
        IF template[i] == '-': # template[i] in alignment is blank
            res := BlankResidue() # create a residue with blank atoms
            target_structure.append(res)
            i++
            if structure[j][0] == '-': # structure file missing residue
                j++
            continue
        ENDIF
        IF target[i] == '-': # target[i] in alignment is blank
            i++, j++
            continue
        ENDIF
        res := copyAtoms(structure[j][1]) # copy the atoms
        changeResidueName(res,target[i]) # change the residue name for atoms
        target_structure.append(res)
        i++, j++
    ENDWHILE
    final_structure := []
    FOR res IN target_structure:
        FOR atom IN res:
            IF atom is not blank:
                final_structure.append(atom)
            ENDIF
        ENDFOR
    ENDFOR

```