In this study, crease recovery and retention performances of wool fabric, whose performance is poor especially in wet condition, were enhanced by shape memory polyurethane (SMPU) finishing. Crease recovery of a flat garment and crease retention of a pleated skirt during washing and drying cycles by shape memory effect of SMPU were compared with a commercial polyurethane based agent. The recovery and retention performances of wool fabric were investigated by a comprehensive test procedure including air and water at different temperatures simulating laundry and drying processes. Chemical and morphological analyses (FT-IR and SEM), bending rigidity and tear resistances were tested to determine the applied smart finishing on mechanical and hand properties of the fabric. The results show that SMPU finishing treatment may be a solution for smart crease recovery or retention during standard cleaning processes without the need of iron.