

2^{32}
 $1(4294967295)$
 $count >$
 $0count <$
 $0count =$
 0
 $Ins(pos, ele), Del(pos), Set(pos, ele)$
 $Ins(pos, str), Del(pos, len)$
 $Del(pos1, len1; pos2, len2; ...; posk, lenk)$
 $LPU SHX - >$
 $Ins(0, ele)$
 $RPU SHX - >$
 $Ins(len, ele)$
 $LINSE RT - >$
 $Ins(pos, ele)$
 $LPOP - >$
 $Del(0)$
 $RPOP - >$
 $Del(len -$
 $1)$
 $RPOPLPU SH - >$
 $Del(len -$
 $1)$
 $LSET - >$
 $Set(pos, ele)$
 $LPU SH - >$
 $Ins(0, str)$
 $RPU SH - >$
 $Ins(len, str)$
 $LTRIM - >$
 $Del(0, pos1 -$
 $1; pos2 +$
 $1, len -$
 $pos2 -$
 $1)$
 $LREM - >$
 $Del(pos1, len1; pos2, len2; ...; posk, lenk)$

- (1) $Set \{ O T(set(i, x), set(j, y)) = \{ n o - oppr1 > pr2i = jset(i, x)elseOT(Set(i, x), Ins(j, y)) = \{ Set(i, x) i < jSet(i + 1, x)$
- (2) $Ins \{ O T(Ins(i, x), set(j, y)) = Ins(i, x)OT(Ins(i, x), Ins(j, y)) = \{ ins(i + 1, x) i > jins(i, x) i < jins(i + 1, x) i = jpr1 <$
- (3) $Del \{ O T(Del(i), Set(j, x)) = Del(i)OT(Del(i), Ins(j, x)) = \{ Del(i + 1) i \geq jDel(i) i < jOT(Del(i), Del(j)) = \{ Del(i -$
- (4) $OT(Ins(p1, s1), Ins(p1, s2)) = \{ I ns(p1, s1)p1 < p2Ins(p1 + |s2|, s1)p1 > p2Ins(p1 + |s2|, s1)p1 = p2pr1 < pr2Ins(p1, s1)$
- (5) $OT(Ins(p1, s1), Del(p2, l1)) = \{ I ns(p1, s1)p1 \leq p2no - opp2 < p1 < p2 + l1Ins(p1 - l1, s1)p1 \geq p2 + l1$
- (6) $OT(Del(p1, l1), Ins(p2, s1)) = \{ D el(p1, l1)p1 + l1 \leq p2Del(p1, l1 + |s1|)p1 < p2 < p1 + l1Ins(p1 + |s1|, l1)p1 \geq p2$
- (7) $OT(Del(p1, l1), Del(p2, l2)) = \{ D el(p1, l1)p1 < p2p1 + l1 \leq p2Del(p1, p2 - p1)p1 < p2p2 < p1 + l1 \leq p2 + l2Del(p1, l1 - l2)$
- (8) $OT(Ins(p_{k+1}, s_{k+1}), Del(p_1, l_1; p_2, l_2; ...; p_k, l_k))$
 $= \{ I ns(p_{k+1}, s_{k+1})p_{k+1} \leq p_1no - opp_i < p_{k+1} < p_i + l_iIns(p_{k+1} - l_1 - l_2 - ... - l_i, s_{k+1})p_i + l_i \leq p_{k+1} \leq p_{i+1}Ins(p_{k+1} - l_1 - l_2$
- (9) $OT(Del(p_1, l_1; p_2, l_2; ...; p_k, l_k), Ins(p_{k+1}, s_{k+1}))$
 $= \{ D el(p_1 + |s_{k+1}|, l_1; p_2 + |s_{k+1}|, l_2; ...; p_i, l_i; p_{i+1} + |s_{k+1}|, l_{i+1}; ...; p_k + |s_{k+1}|, l_k)p_{k+1} \leq p_1Del(p_1, l_1; p_2, l_2; ...; p_{i-1}, l_{i-1}; p_i,$