Stack

```
import java.io.*; import java.lang.*; import java.util.Stack;
class kapil
{ public static void main( String args[]) throws Exception
 { Stack<String> s=new Stack<String>( );
  Stack<String> t=new Stack<String>( );
  DataInputStream u=new DataInputStream(System.in);
  String a,b,c;char p,q;int i,j,size=0;
  do
  { a=u.readLine( );
   p=a.charAt(0);
   if (p=='A')
   { b=a.substring(1);
    s.push(b);
    size=size+1;
   }
   if (p=='B')
   { s.pop( );
    size=size-1;
   }
   if (p=='C')
   { b=s.pop( );
    System.out.println(b);
    s.push(b);
   }
   if (p=='D')
   { for(i=1;i<=size;i++)
     { b=s.pop( );
      t.push(b);
     }
    for(i=1;i<=size;i++)
     { b=t.pop( );
      System.out.print(b+",");
      s.push(b);
     }
    System.out.println( );
   }
   if (p=='E')
   { q=a.charAt(1);
    c=a.substring(2);
    j=(int)q-48;
    j=size+2-j;
    size=size+1;
    for(i=1;i<=j-1;i++)
     { b=s.pop( );
      t.push(b);
     }
    s.push(c);
    for(i=1;i<=j-1;i++)
     { b=t.pop( );
      s.push(b);
     }
   }
  }while(1==1);
 }
}
```

Array should not be used

- Ax Put x at end
- B Remove the last element (no print)
- C Print the last element
- D Print the entire list
- Exy Put y at location x (no print)
- F Print the list in reverser order
- G Print the first element
- Hx Print the x^{th} element (x>9 permitted)
- Ix Put x at beginning (no print)
- J Remove the first element (no print)
- K Print the maximum element
- L Remove the maximum element (no print)
- Mx Put x at proper place in sorted (descending) list (no print)
- Nxy Replace the x^{th} element by y (no print)
- P Print list in descending order
- Qx Whether x is present or not
- Rx Remove x (no print)
- W First line of selection sort
- X First line of bubble sort
- Y Complete method of selection sort
- Z Complete method of bubble sort

S Reverse stack (no print)

Ap,Ag,At,Au,D,B,C ⇒ pgtu and t
Am,Ag,Af,E2t,D,Au,E3k,Ac,D ⇒ mtgf and mtkgfuc
Ak,Ad,Ac,Ap,F,D,Au,D ⇒ pcdk and kdcp and kdcpu
Ac,Ar,Au,Am,H2,Iw,H2 ⇒ r and c
Az,Ar,Ay,Ak,J,As,Aw,D,G ⇒ ryksw and r
Af,Ad,Ac,Ah,Ab,K,F ⇒ h and bhcdf
Af,Ad,Ac,Ah,Ab,Ae,L,Aw,D ⇒ fdcbew
Ay,Aw,Ak,Ac,Mt,D,Mz,Mb,D ⇒ ywtkc and zywtkcb
Ay,Ag,Ak,Af,At,N2p,D ⇒ ypkft
Ay,Ag,Ak,Af,At,P,D ⇒ ytkgf and ygkft
Ay,Ag,Ak,Af,At,Qg,D,Qc ⇒ yes and ygkft and no
Ay,Ag,Ak,Af,At,Qg,Rg,Qg ⇒ yes and no
Au,Am,Ac,Az,Af,D,W ⇒ umczf and cmuzf
(Find location of smallest element and exchange with first)
Au,Am,Ac,Az,Af,Y ⇒ cmuzf,cfuzm,cfmzu,cfmuz
At,Ap,Ag,Ac,Au,Ak,Ai,D,X ⇒ tpgcuki and pgctkiu
Au,Am,Ac,Az,Af,P,X ⇒ umczf and mcufz
Au,Am,Ac,Az,Af,Z ⇒ mcufz,cmfuz,cfmuz,cfmuz

Ax, B, C and F form stack operations. These correspond to Push(x), Remove, Top and Print.

Ix, J, G and D also form stack operation.

Ax, J, G and D form queue operation. Ix, B, C and F also form queue operation.

Mx, J, G and D form priority queue operation. Ax, L, K and P also form priority queue. In priority queue the maximum element is taken.

Ap,Ad,Ac,Am,S,D,Ak,Ag,S,Am,D ⇒ mcdp and gkpdcmm

D.D