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PROGRAM PROJECT(INPUT,OUTPUT);
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CONST QUOTA = 10;
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TYPE NAME = ARRAY[1..27] OF STRING(15);
ENTRY = RECORD
    X : ARRAY [1..4,-6..20] OF INTEGER;
    DELETE,MOREPOSS,PREPOSS,
    TWO,THREE,FOUR,CRIA,CRITERIA : INTEGER;
    PREFER : ARRAY[1..4] OF INTEGER;
    END;
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```
T8 = ARRAY[1..27] OF ENTRY;
SEND = ARRAY[1..4] OF INTEGER;
POINT = ARRAY[-6..20] OF INTEGER;
VAR CMU : NAME;
ACCOUNT : T8;
RESULT,STUDENT,MAX,SCHOOL,EXPLORE : INTEGER;
CHOICE,MARK : SEND;
F,G : TEXT;
DECISION : (CONTINUE,SATISFY);
Y,YY : POINT;
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PROCEDURE LINE(VAR N : INTEGER);
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VAR I : INTEGER;
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```
BEGIN WRITE('+');
FOR I := 1 TO N DO
WRITE('-');
WRITELN('+');
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END;
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```
PROCEDURE LIST(VAR ACC : T8;
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VAR P : NAME);
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VAR I,J,N,TT : INTEGER;
T : ARRAY[1..5] OF INTEGER;
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BEGIN
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WRITELN('TABLE I' : 40);
N := 75;
WRITELN('Entrance Examination Candidates Model': 56);
LINE(N);
WRITELN('PREFERENCE' : 51);
WRITELN('FACULTY' : 15,'FIRST' : 19,'SECOND' : 10,
'THIRD' : 10,'FOURTH' : 10, 'TOTAL' : 9);
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LINE(N);
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FOR I := 1 TO 5 DO T[I] := 0;
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```
FOR I := 1 TO SCHOOL DO
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BEGIN
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WRITELN;
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WRITE(I : 4, '. ');
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TT := 0;
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```
WRITE(P[I] : 15);
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WRITE(' ');
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```
WITH ACC[I] DO
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FOR J := 1 TO 4 DO
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        BEGIN
            T[J] := T[J] + PREFER[J];
            WRITE(PREFER[J] : 10);
            TT := TT + PREFER[J];
            END;
        WRITE(TT : 10);
        T[5] := T[5] + TT;
        END;
    WRITELN;
    LINE(N);
    WRITE('TOTAL CANDIDATES' : 22);
    FOR I := 1 TO 5 DO
        WRITE(T[I] : 10);
    WRITELN;
    LINE(N);
END;
```

```

PROCEDURE OPTIONAL(VAR ACC : T8;
                   MAX : INTEGER;
                   CH,MA : SEND);

    LABEL 100;
    VAR C,M,I : INTEGER;
    BEGIN FOR I := 1 TO 4 DO
        BEGIN
            IF CH[I] < 0
            THEN GOTO 100;
            C := CH[I];
            M := MA[I];
            WITH ACC[C] DO
                IF M >= CRITERIA - 5
                THEN IF M >= CRITERIA + MAX
                    THEN X[I,MAX] := X[I,MAX] + 1
                    ELSE X[I,M-CRITERIA] := X[I,M-CRITERIA] + 1
                ELSE X[I,-6] := X[I,-6] + 1;
            END;
        END;
    100:
    END;
```

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PROCEDURE TT8(VAR ACC : T8;
              MAX : INTEGER;
              CH,MA : SEND);

    LABEL 77 ;
    VAR RESULT : (FAIL,POSS,CERT,PROB1,PROB2);
        IHOPE,CHOPE,MHOPE,C,I,M : INTEGER;
    BEGIN
        RESULT := FAIL;
        FOR I := 1 TO 4 DO
            BEGIN
                IF CH[I] < 0 THEN GOTO 77;
                C := CH[I];
                M := MA[I];
                WITH ACC[C] DO
                    IF M >= CRITERIA - 5
                    THEN
                        (*PASS SCORE*)

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IF M >= CRITERIA THEN CASE RESULT OF
FAIL : BEGIN
    RESULT := CERT;
    IF M >= CRITERIA + MAX
    THEN X[I,MAX] := X[I,MAX] + 1
    ELSE X[I,M-CRITERIA] := X[I,M-CRITERIA] + 1;
    END;
POSS : BEGIN
    IF M >= CRITERIA + MAX
    THEN X[I,MAX] := X[I,MAX] + 1
    ELSE X[I,M-CRITERIA] := X[I,M-CRITERIA] + 1;
    RESULT := CERT;

    WITH ACC[CHOPE] DO
    BEGIN
        PREPOSS := PREPOSS + 1;
        X[IHOPE,MHOPE-CRITERIA] := X[IHOPE,MHOPE-
            CRITERIA] - 1;
        END; (*END OF WITH*)
    END; (*END OF POSS*)
CERT : BEGIN
    RESULT := PROB1;
    TWO := TWO + 1;
    END; (*END OF CERT*)
PROB1 : BEGIN
    RESULT := PROB2;
    THREE := THREE + 1;
    END; (*END OF PROB1*)
;
PROB2 : FOUR := FOUR + 1;

END (*END OF CASE OF PASS SCORE*)

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(\* POSSIBLE SCORE \*)

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ELSE CASE RESULT OF
FAIL : BEGIN
    RESULT := POSS;
    MHOPE := M;
    CHOPE := C;
    IHOPE := I;
    X[I,M-CRITERIA] := X[I,M-CRITERIA] + 1;
    END; (*END OF FAIL*)
POSS : MOREPOSS := MOREPOSS + 1;
CERT,PROB1,PROB2 : DELETE := DELETE + 1;
END (*END OF CASE OF POSSIBLE SCORE*)

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(\*FAIL COUNT\*)

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ELSE X[I,-6] := X[I,-6] + 1;
END; (*END OF FOR*)
77 : END; (*END OF TT8*)

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PROCEDURE ADJUST(VAR ACC : T8;
                MAX : INTEGER;
                YY : POINT;
                P : INTEGER);

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LABEL 70,80;
VAR M,N : INTEGER;
BEGIN WITH ACC[P] DO

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BEGIN
(* ADJUST THE CRITERIA POINTS *)
  (* CASE OF YY[MAX] > QUOTA *)
  IF YY[MAX] > QUOTA THEN
  BEGIN
    M := YY[0] - YY[MAX];
    IF M < MAX DIV 5 THEN M := MAX DIV 5;
    N := (YY[MAX] - QUOTA) * MAX DIV M + MAX;
    GOTO 70;
  END;
  (* CASE OF YY[MAX] <= QUOTA *)
  FOR N := MAX DOWNT0 0 DO
    IF YY[N] >= QUOTA THEN GOTO 80;
  (* CASE OF YY[CP] < QUOTA *)
  FOR N := -1 DOWNT0 -5 DO
  BEGIN
    YY[0] := YY[0] + YY[N];
    IF YY[0] >= QUOTA THEN GOTO 80;
  END;
  (* CASE OF YY[0] < QUOTA *)
  M := YY[0] - YY[MAX];
  IF M < MAX DIV 5 THEN M := MAX DIV 5;
  N := (YY[0] - QUOTA) * (MAX + 5) DIV M - 5;
70 : IF ABS(N) > (CRITERIA DIV 2)
    THEN IF (N > 0) OR (CRITERIA <= 150)
        THEN N := CRITERIA DIV 2
        ELSE N := -CRITERIA DIV 2;
80 : CRITERIA := CRITERIA + N;
(* END OF ADJUST THE CRITERIA POINTS *)
  END;
END;

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PROCEDURE LISTTABLE(VAR ACC : T8;
                    CMU : NAME);
VAR L,N : INTEGER;
BEGIN L := 78;
      WRITELN;
      WRITELN;
      WRITELN('TABLE III' : 49);
      WRITELN;
      WRITELN('NUMBER OF CANDIDATES WHO' : 56);
      LINE(L);
      WRITELN('HAVE EXTRA ADMISSION AS' : 43,
              'ARE RESERVE BUT PASS ON' : 24, 'HAVE MORE' : 11);
      WRITELN('TWO,THREE,FOUR CHANCES' : 42,
              'NEXT,PREVIOUS PREFERENCE' : 26, 'RESERVES' : 10);
      LINE(L);
      FOR N := 1 TO SCHOOL DO
      BEGIN
        WITH ACC[N] DO
        BEGIN
          WRITE(N : 3, ' ', CMU[N] : 15);
          WRITE(TWO : 4, THREE : 6, FOUR : 6, PREPOSS : 14,
                DELETE : 6, MOREPOSS : 20);
          WRITELN;
        END;
      END;

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                END;
            END;
        LINE(L);
    END;

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PROCEDURE      CALCUL(VAR ACC : TB;
                    CMU : NAME;
                    STEP,MAX : INTEGER;
                    Y,YY : POINT);
VAR            L,P,M,N : INTEGER;
BEGIN
    FOR P := -6 TO MAX DO
        Y[P] := 0;
        L := 128;
        WRITELN;
        WRITELN;
        WRITELN('TABLE II' : 60, ' .',STEP:2);
        WRITELN;
        WRITELN('A COUNT OF PASSES , RESERVES AND FAIL BY' : 73,
                'USING CRITERIA' : 15);
        LINE(L);
        WRITELN('NUMBER OF PASSES AT OVER CRITERIA' : 56, '( +1)'
                : 9, 'TO' : 4 , '( +MAX)' : 10, 'AT(CRITERIA)' : 14,
                'RESERVES AT( -1)' : 22, 'FAIL':9);
        LINE(L);
        FOR P := 1 TO SCHOOL DO
            BEGIN
                FOR N := -6 TO MAX DO YY[N] := 0;
                WITH ACC[P] DO
                    BEGIN
                        FOR M := 1 TO 4 DO
                            BEGIN
                                YY[MAX] := YY[MAX] + X[M,MAX];
                                Y[MAX]  := Y[MAX] + X[M,MAX];
                                FOR N := MAX - 1 DOWNTO 0 DO
                                    BEGIN
                                        X[M,MAX] := X[M,MAX] + X[M,N];
                                        YY[N]    := YY[N] + X[M,MAX];
                                        Y[N]     := Y[N] + X[M,MAX];
                                    END;
                                FOR N := -1 DOWNTO -6 DO
                                    BEGIN
                                        YY[N] := YY[N] + X[M,N];
                                        Y[N]  := Y[N] + X[M,N];
                                    END;
                                END;
                            WRITE(P :4, ' .',CMU[P] : 15);
                            FOR N:= MAX DOWNTO 0 DO WRITE(YY[N] : 5);
                            WRITELN;
                            WRITE( '( ' :85,CRITERIA : 5, ' )');
                            FOR N := -1 DOWNTO -6 DO WRITE(YY[N] : 5);
                            WRITELN;
                            ADJUST(ACC,MAX,YY,P);
                        END;
                    END;
                END;
            END;
        LINE(L);
    END;

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WRITE('TOTAL NUMBER' : 19, ' ');
FOR N := MAX DOWNT0 0 DO
WRITE(Y[N] : 5);
WRITELN;
WRITE(' ' : 93);
FOR N := -1 DOWNT0 -6 DO WRITE(Y[N] : 5);
WRITELN;
LINE(L);
WRITELN;
LISTTABLE(ACC.CMU);

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END;

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PROCEDURE CALLCMU(VAR CMU : NAME);
VAR I,TEMP : INTEGER;
BEGIN
WRITE('MAXIMUM RANGE OF COUNT AT OVER CRITERIA IS ' : 57);
READLN(MAX);
WRITE('AMOUNT OF SCHOOL ':57);
READLN(SCHOOL);

ASSIGN(F,'B:KAWL');
RESET(F);
FOR I := 1 TO SCHOOL DO
READLN(F,CMU[I]);
CLOSE(F);
WRITELN;
WRITELN('PLEASE ENTER ',SCHOOL:2,' INITIAL CRITERIA ' : 34);
WRITELN;
FOR TEMP := 1 TO SCHOOL DO
WITH ACCOUNT[TEMP] DO
BEGIN
CRIIA := 0;
READ(CRITERIA);
END;

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END;

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PROCEDURE CLEAR(VAR ACCOUNT : TB;
MAX : INTEGER);
VAR I,J,K : INTEGER;
BEGIN
FOR I := 1 TO SCHOOL DO
BEGIN WITH ACCOUNT[I] DO
BEGIN
MOREPOSS := 0;
PREPOSS := 0;
DELETE := 0;
TWO := 0;
THREE := 0;
FOUR := 0;
FOR J := 1 TO 4 DO
BEGIN
PREFER[J] := 0;
FOR K := MAX DOWNT0 -6

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                                DO X[J,K] := 0;
                                END;
                                END;
                                END;
                                END;

PROCEDURE READFILE(VAR ACCOUNT : T8;
                   CMU : NAME;
                   EXPLORE,MAX : INTEGER);

LABEL 99;
VAR I,K : INTEGER;
BEGIN CLEAR(ACCOUNT,MAX);
       ASSIGN(F,'B:KAW2');
       RESET(F);
       WHILE NOT EOF(F) DO
           BEGIN
               READ(F,STUDENT);
               FOR I := 1 TO 4 DO
                   READ(F,CHOICE[I],MARK[I]);
                   WHILE NOT TRUE DO
                       WRITELN('ERROR AFTER STUDENT',STUDENT :6);
                       READLN(F);
                       (* OPTIONAL(ACCOUNT,MAX,CHOICE,MARK) *)
                       TT8(ACCOUNT,MAX,CHOICE,MARK);
                   FOR I := 1 TO 4 DO
                       BEGIN
                           IF CHOICE[I] < 0 THEN GOTO 99;
                           WITH ACCOUNT[CHOICE[I]] DO
                               PREFER[I] := PREFER[I] +1;
                           99: END;
                       END;
                   CLOSE(F);
                   IF (EXPLORE > 15) OR (EXPLORE =1)
                       THEN LIST(ACCOUNT,CMU);
                   CALCUL(ACCOUNT,CMU,EXPLORE,MAX,Y,YY);
           END;

PROCEDURE STEP(VAR ACCOUNT : T8;
               CMU : NAME;
               EXPLORE,MAX : INTEGER);

VAR TEMP : INTEGER;
BEGIN EXPLORE := 1;
       ASSIGN(G,'A:OUT');
       REWRITE(G);
       WHILE EXPLORE < 16 DO
           BEGIN
               FOR TEMP := 1 TO SCHOOL DO
                   WITH ACCOUNT[TEMP] DO
                       WRITE(G,CRITERIA : 5);
                       WRITELN(G);

                   READFILE(ACCOUNT,CMU,EXPLORE,MAX);
                   WRITELN;
                   WRITELN('STEP OF EXPLORE =' : 23,EXPLORE : 4);

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DECISION := SATISFY;
WRITELN;
WRITELN('BETTER CRITERIA POINT ARE' : 31);
FOR TEMP := 1 TO SCHOOL DO
    WITH ACCOUNT[TEMP] DO
        BEGIN
            WRITE(CRITERIA : 5);
            IF CRITERIA <> CRIA THEN
                BEGIN
                    DECISION := CONTINUE;
                    CRIA := CRITERIA;
                END;
            END;
        END;
    WRITELN;
    IF DECISION = SATISFY THEN EXPLORE := 15;
    EXPLORE := EXPLORE + 1;
END;
WRITELN;
WRITELN('THE EXPLORATION SHOULD : SATISFY. ' : 50);
WRITELN('PLEASE COMPARE WITH THE NEXT TABLE' : 50);
WRITELN;
CLOSE(G);
EXPLORE := 16;
READFILE(AACCOUNT,CMU,EXPLORE,MAX);
END;

(* THIS IS MAIN PROGRAM *)

BEGIN
    CALLCMU(CMU);
    STEP(AACCOUNT,CMU,EXPLORE,MAX);
END.

```