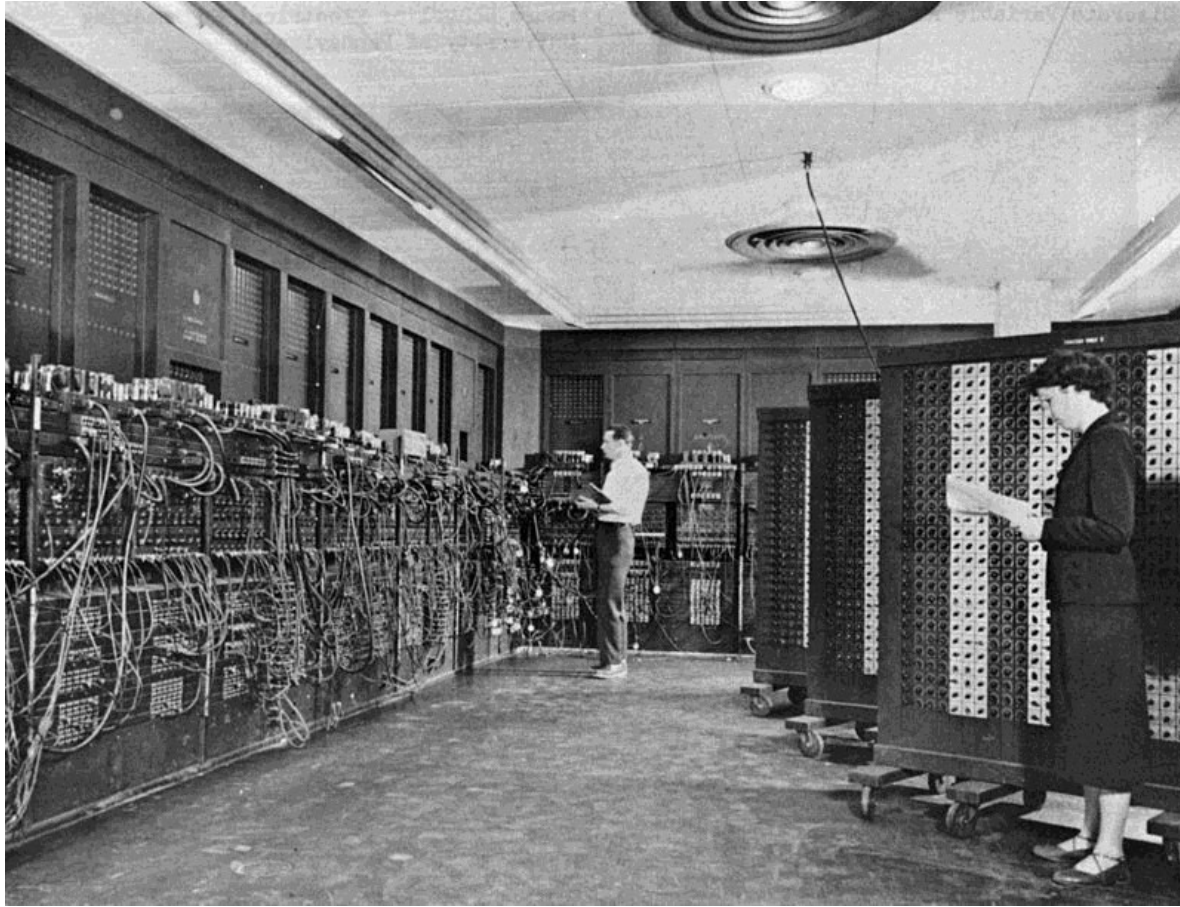# J05 Control Flow 1

Control flow
if-then-else
switch
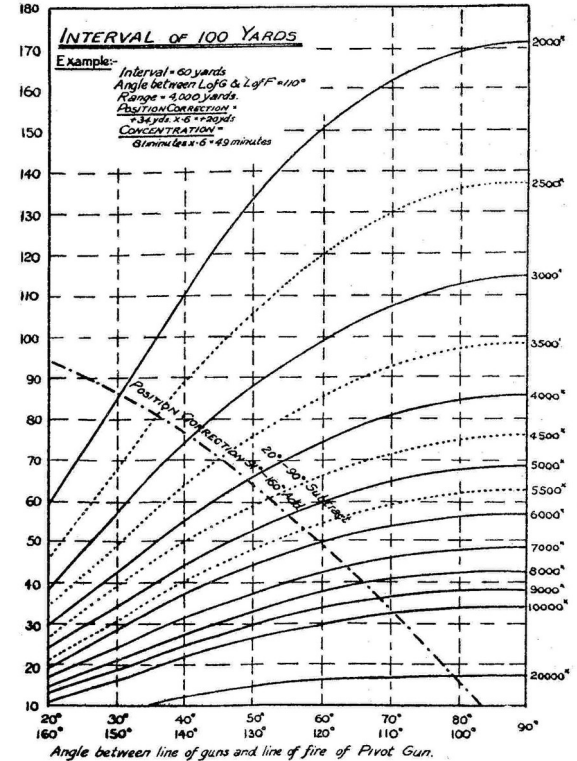
Women workers ('computers') in a calculation "factory," 1930s. Courtesy of the Library of Congress.

GRAPH SHOWING:-
1 CONCENTRATIONS, at varying angles between line of guns and line of fire for 100 yards interval. (Continuous and dotted curves).
2. POSITION CORRECTIONS, as above. (Chain dotted curve).

INTERVAL OF 100 YARDS
Example:-
Interval = 60 yards
Angle between L of G & L of F = 110°
Range = 4,000 yards
POSITION CORRECTION =
+34.yds. x·6 = +20yds
CONCENTRATION =
81minutes x·6 = 49 minutes

POSITION CORRECTIONS

20° DOTTED
60° DOTTED

Angle between line of guns and line of fire of Pivot Gun.

Calculating a trajectory could take up to 40 hours using a desk-top calculator. The same problem took 30 minutes or so on the Moore School's differential analyzer. But the School had only one such machine, and since each firing table involved hundreds of trajectories it might still take the better part of a month to complete just one table. [Winegrad & Akera 1996]

Control Flow

Control flow statements allow the execution of the program to deviate from a strictly sequential execution of statements ('selection').

Structured programming: sequence, **selection**, iteration.

`if`-then & `if`-then-`else` statements

- The `if`-then construct conditionally executes a block of code.

- The `if`-then-`else` construct conditionally executes one of two blocks of code.

The *old* `switch` statement

- The `switch` statement selects one path among many.

- Execution jumps to the first matching `case`.

- Execution continues to the end of the `switch` unless a `break` statement is issued.

The *new* `switch` expression

- The `switch` expression selects one value among many.

- Execution jumps to the first matching `case`.

- The value of the expression is given by the `yield` operator in the matching case.