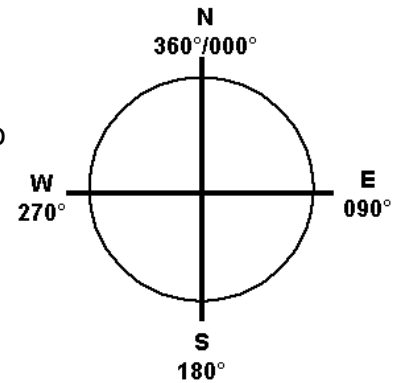


**Problem Statement # 1**

One way of giving a direction is to simply use one of the letters N, E, S, or W, indicating the nearest compass point. Another way is to give a bearing as a number from 0 to 359 (since 360 would be back to 0 again). A bearing of 0 corresponds to N, a bearing of 90 corresponds to E, and so on.



Write a program that prompts the user for a bearing from 0 to 359 and prints the corresponding letter of the compass point nearest to the bearing. Bearings exactly halfway between two compass points should produce either N or S (never E or W).

Your program should assume only integer data will be input by the user. Valid integers that are outside of the valid range (e.g., less than zero, greater than or equal to 360) should still be interpreted in a meaningful way by your program.

For example:

- input of 73 is between N and E, but it is closer to E, so the program should output E.
- input of 45 is exactly halfway between N and E, so the program should output N.

**Problem Statement # 2**

Write a program to compute an employee's weekly pay and produce a pay slip showing name, gross pay (i.e., pay before deductions), deductions, and net pay (i.e., pay after deductions).

The program should first prompt the user for:

- family (last) name
- given (first) name
- hourly rate of pay
- number of hours worked that week (any hours over 40 are paid at double the normal rate)
- a letter indicating the employee's tax category (to be handled using a switch/case statement)
  - no tax deduction
  - tax is 10% of gross pay
  - tax is 20% of gross pay
  - tax is 29% of gross pay
  - tax is 35% of gross pay
- either a 'Y' or an 'N' to indicate whether or not the employee wants \$20 deducted from the weekly pay as a contribution to a charity.

Assignment 2a (max level 2 for overall assignment set)

- NE, NW, SE, SW handled correctly
- N most likely error (other three directions are essentially same).

Assignment 2b – payroll (adds up to 2 full levels to mark from assignment 2a)

- basics (must have for level 2)
  - name entry
  - hourly pay
  - calculation of weekly pay, including overtime
  - meaningful output
- up to level 4 (assumes near-perfect previous assignment)
  - tax category
  - payroll deduction for charity
- anything above and beyond (Level 4+)
  - better handling of unexpected data (e.g., upper and lower case)