## Problem 1: Milk cartons

1. Start
2. Declare double variables cart\_length, cart\_height, volume\_inch\_cubed
3. Ask user for cart\_length
4. Ask user for cart\_height
5. volume\_inch\_cubed = cart\_length \* cart\_length \* cart\_height
6. display(“The carton has a volume of ” + (volume\_in\_cubed \* .55) + “ounces”)
7. Stop

## Problem 2: Skiing trip

1. Start
2. Declare integer variables days, breckenridge, copper, vail
3. Ask user for how many days in the future they want for a snow prediction
4. breckenridge = days \* 10 / 5
5. If breckenridge < 0
   1. Return 0
6. copper = days \* 5 / 3
7. If copper < 0
   1. Return 0
8. vail = days \* 14 / 2
9. If vail < 0
   1. Return 0
10. Display(“vail: ” + vail + “copper: ” + copper + “breckenridge: ” + breckenridge)
11. end

## Problem 3a: Job at Zillow

1. start
2. Declare variables user\_sqft, user\_pets, user\_rent
3. Ask user for desired square footage, pets, and rent
4. If user\_sqft equals anything but a positive integer
   1. User\_sqft = 0
   2. Return 0
5. If user\_pets eaquals anything but true or false
   1. User\_pets = false
   2. Return 0
6. If user\_rent equals anything but a positive integer
   1. User\_rent = 0
   2. Return 0
7. If user\_sqft is greater than or equal to 600
   1. If user\_input is greater than or equal to 800
      1. If user\_input is greater than or equal to 1000
         * 1. If user\_rent is greater than or equal to 1800

Display(“We recommend apartment C!”)

Return 0

* + - * 1. Else

Display(“No matches, sorry!”)

Return 0

* + 1. If user\_pets = false
       - 1. If user\_rent is greater than or equal to 1600

Display(“We recommend apartment B!”)

Return 0

* + - * 1. Else

Display(“No matches, sorry!”)

Return 0

* + 1. Else
       1. display(“No matches, sorry!”)
       2. return 0
  1. If user\_rent is greater than or equal to 1200
     1. Display(“We recommend apartment A!”)
     2. Return 0
  2. Else
     1. Display(“No matches, sorry!”)
     2. Return 0

1. End

## Problem 3b: Job testing

Scenario 1: 1540 sfqt, pets, $2000

Output: We recommend apartment C!

Scenario 2: 800 sfqt, pets, $1800

Output: No matches, sorry!

Scenario 3: 660 sfqt, no pets, $1600

Output: We recommend apartment A!

Scenario 4: “faeng” sfqt, no pets, $1000

Output: No matches, sorry!

## Problem 4a: cryptocurrency

1. Start
2. Declare annual\_rate, initial\_investment, daily\_loss, days, months, years
3. Annual\_rate = .65
4. Initial\_investment = 15000
5. Daily\_loss = initial\_investment \* annual\_rate/365
6. While initial\_investment > initial\_investment/2
   1. Initial\_investment = initial\_investment \* daily\_loss
   2. Days += 1
   3. If days = 30
      1. Months += 1
      2. Days = 0
      3. Initial\_investment – 100
   4. If months = 12
      1. Months = 0
      2. Years += 1
7. Display(years + “ years, ” + months “ months, and ” + days + “ days.”)
8. end

## Problem 4a: cryptocurrency with input

1. Start
2. Declare annual\_rate, initial\_investment, daily\_loss, days, months, years
3. Ask user for annual\_rate, initial\_investment, and monthly\_withdrawl
4. Annual\_rate = annual\_rate \* .01
5. Daily\_loss = initial\_investment \* annual\_rate/365
6. While (initial\_investment > initial\_investment/2)
   1. Initial\_investment = initial\_investment \* daily\_loss
   2. Days += 1
   3. If days = 30
      1. Months += 1
      2. Days = 0
      3. Initial\_investment – monthly\_withdrawl
   4. If months = 12
      1. Months = 0
      2. Years += 1
7. Display(years + “ years, ” + months “ months, and ” + days + “ days.”)
8. end

## Problem 5: Code error

Compile time errors:

“enl” is an undefined statement in C++. Fix it by using “endl”

There is no semicolon at the end of line 5. Fix it by using a semicolon at the end.

The runtime error is that it prints “Hello 1300” and not “Hello 1300!”. We can fix this by just adding an “!” to the end of our original print statement.