DAY 1-ASSIGNMENT

1. A bear starting from the point P, walked one mile due south,

Then he changed direction and walked one mile due east. Then he

turned again to the left and walked one mile due north and arrived at point P he started from what was the color of the bear?

START

Bear starts from point P

Bear walks 1 mile south from P

Bear turns East and walks 1 mile

Bear turns left and walks 1 mile towards north

Bear has reached initial point P

The bear is at North and in Arctic region only polar bears are found

The color of the bear is white

STOP

2. Two towns A and B are 3 km s apart It is proposed to build

a new school serving 100 students in town A and 50 students

in town B. How far from town A should the school be built

if the total travel distance by all 150 students is to be as small as

possible?

Students in town A=100

Students in town B=50

Total Number of students=150

Distance between 2 towns=3kms

Distance of school from town A=x kms

Distance of school from town B=(3-x) kms

Total Distance=100x+50(x-3)

              =100x+50(3-x)

              =100x+150-50x

              =50x+150

Total Distance is minimum when x=0

Therefore School should be at Town A

START

Evaluate the students in Town A and Town B and distance between 2 towns

Calculate the total number of students

Let the distance od school from town A be x kms and Town B be (3-x)kms

Calculate total distance to derive at 50x+150

Total distance is minimum when x is at 0

Print Output as School should be in Town A

STOP

3. A traveller arrives at hotel he has no money but only a silver chain consisting of  6 links. He uses one link to pay for each day

spent at the hotel but the hotel manager agrees to accept no more than one broken link

How should the traveller cut up the chain in order to settle the

amount with the hotel manager on a daily basis

     1. what is the least number of links that have to be cut if the traveller stays 100 days at the hotel  and has a chain cosisting

of 100 links? what is the answer in general case n days and n links

For 6 days,

1 cut, 2 cut,3 cut

He can combine these parts to pay for any amount of days.

D1: Pay 1 link.

D2: Use the 2-link piece.

D3: Use the 3-link piece.

D4: Use the 1-link and 3-link pieces.

D5: Use the 2-link and 3-link pieces.

D6: Use all pieces (1 + 2 + 3 = 6).

For 100 days,

    n=100

    number of cuts=[log2n]-1

                  =[log2[100]-1]

                  =6.644

                  =7approx

                  =7-1

                  =6 cuts

    parts=[1,2,4,8,16,32,64]

START

Let n be the total number of links.

Set cuts = 0

Start with the first part length as 1.

While the total length of the parts is less than or equal to n:

    - Double the length of the part for each subsequent cut (1, 2, 4, 8, 16, 32, 64).

    - Add 1 to the cuts each time you make a cut.

Output the value of cuts(ie-6)

STOP

4.Rearrange the letters in the words new door to make one word

START

calculate the number of letters and analyse the number of combinations

Make a list of letters and its occurence

put each letter in different blocks

Sort it in such a way with each combinations

Repeat the iteration until the required result is obtained

STOP

5.  do divide and conquer  6   5  1  4  3  2

                             6  5  1  4  3  2

                        6    1  5           4    2  3

                          1 5 6               2 3 4

                             1  2  3  4  5  6

START

Count the total number of elements and divide it by half-(6/2)

Divide the array into 2 halves  6 5 1    4 3 2

Divide it again until we get unti elements  6   5 1   4   3 2

Sort it   6  1 5     4   2 3

Sort it again and merge it  1 5 6   2 3 4

Final sort and merge it on the whole  1 2 3 4 5 6

STOP

6.Draw flowchart for calculating simple interest

