e-Yantra Robotics Competition Plus
(eYRC+ 2015)
eYRCPlus-PS2#2526

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Note: First complete the **Task 2_Practice** to answer the following questions.

Scope of the task (7)

Explain the algorithm used to perform the task given in Task2_Practice folder.

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1. take the 3 numbers from the 2nd set
2. subtract each of them with an 1st element of 1st set of numbers
    a. assign to 3 diff variables (x,y,z)
3. Search the rest of the array if we have an element equal to the difference obtained above
    a. If obtained then the element used to subtract and the obtained are a possible solution set
    b. Put those index(s) in another reference array
    c. Add an extra elements say 100 to mark end of soln set
4. calculate length solution set

5.if for a number which has 0 solution (sum of no TWO numbers of 1st set gives the sum,implies it needs to be sum of more than 2 numbers

a) The above process as done by dealing with 2 elements will b implemented for 3 to 8 elements(as other 2 number will require 2 elements each(total 4))

6)if soln set length is least then it get priority and its values are first considered

7) used numbers are edited to 100 to mark used

8)soln set length which is in between is considered

9) last the 1s with large length

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Algorithm Implementation (6)

Answer the following question. For this part use the inputs given in *"Task2_Practice/Test_inputs" folder.*

For each of the three test inputs, what will be the solution according to your algorithm? (You need not write the program; you can just write the solutions for the three test inputs.)

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Answer format: Bulleted form

1. Test_input0.txt
   15=8+7
   11=9+2
   10=4+6
2. Test_input1.txt
   14=6+8
   12=7+5
   10=9+1
3. Test_input2.txt
   10=5+5
   14=7+7
   16=8+8

>

Software used (7)

Write down the answers to the following questions.

1. Write a function in Python or C to make a number by adding numbers in a given array.
   Write a function:
   Sum_of_number(Given array,Required_number)
   which takes two arguments:
   a. *Given array*: array of 10 numbers. Numbers can be from 0 to 9.
   b. Required_number: an integer ranging from 0 to 20.

Output of program should display the numbers that are used to make Required_number.
<Answer format:
Code with explanation in the form of comments. >

```
int Sum_of_number(int D1[],int a)
// Sum_of_number(Given array,Required_number)

{
  int i,j,k,l,m,n,o,p;    //loop variables
  int x[8]={0,0,0,0,0,0,0,0};          //temp array
  for(i=0;i<10;i++)          //loop to traverse through the array
  {
    x[0]=a-D1[i];                    //subtract  required number from array elements
```

```
for(j=(i+1);(j<10);j++)              //traverse through rest of the array
{
  if(D1[j]==x[0])// check if there exists a element in array equal to difference obtained above
    {
       printf("%d=%d+%d \n",a,D1[i],D1[j]); // if present then print them as out put
       D1[i]=100;                    //to make sure the element is no used again
       D1[j]=100;                    //to make sure the element is no used again
       return;                       //if we get the result to stop the process
    }
    else                             //  else the sum requires 3 numbers from d array
    {

  x[1]=x[0]-D1[j];                   // similar process as above but for 3rd element
  for(k=(j+1);k<10;k++)
  {
    if(D1[k]==x[1])
    {
       printf("%d=%d+%d+%d\n",a,D1[i],D1[j],D1[k]);
       D1[i]=100;
       D1[j]=100;
       D1[k]=100;
       return;
    }
    else
    {
      x[2]=x[1]-D1[k];
       for(l=(k+1);l<10;l++)
       {
         if(D1[l]==x[2])             //4th element
         {
            printf("%d=%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l]);
            D1[i]=100;
            D1[j]=100;
            D1[k]=100;
            D1[l]=100;
            return;
         }
         else
         {
            x[3]=x[2]-D1[l];                  //5th element
            for(m=(l+1);m<10;m++)
            {
               if(D1[m]==x[3])
               {
                  printf("%d=%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m]);
                  D1[i]=100;
                  D1[j]=100;
                  D1[k]=100;
                  D1[l]=100;
                  D1[m]=100;
                  return;
```

```
                }
                else
                {
                   x[4]=x[3]-D1[m];                    //6th element
                   for(n=(m+1);n<10;n++)
                   {
                      if(D1[n]==x[4])
                      {

printf("%d=%d+%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m],D1[n]);
                         D1[i]=100;
                         D1[j]=100;
                         D1[k]=100;
                         D1[l]=100;
                         D1[m]=100;
                         D1[n]=100;
                         return;
                      }
                      else
                      {
                         x[5]=x[4]-D1[n];
                         for(o=(n+1);o<10;o++) //7th element
                         {
                            if(D1[o]==x[5])
                            {

printf("%d=%d+%d+%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m],D1[n],D1[o]);
                               D1[i]=100;
                               D1[j]=100;
                               D1[k]=100;
                               D1[l]=100;
                               D1[m]=100;
                               D1[n]=100;
                               D1[o]=100;
                               return;
                            }
                            else
                            {
                               x[6]=x[5]-D1[o];
                               for(p=(o+1);p<10;p++) //8th element
                               {
                                  if(D1[p]==x[6])
                                  {

printf("%d=%d+%d+%d+%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m],D1[n],D1[o],
D1[p]);
                                     D1[i]=100;
                                     D1[j]=100;
                                     D1[k]=100;
                                     D1[l]=100;
                                     D1[m]=100;
```

```
                                D1[n]=100;
                                D1[o]=100;
                                D1[p]=100;
                                return;
                            }
                        else
                        {
                            x[7]=x[6]-D1[o];
                            for(q=(p+1);q<10;q++) //9th element
                            {
                                if(D1[p]==x[7])
                                {

printf("%d=%d+%d+%d+%d+%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m],D1[n],D1
[o],D1[p],D1[q]);
                                D1[i]=100;
                                D1[j]=100;
                                D1[k]=100;
                                D1[l]=100;
                                D1[m]=100;
                                D1[n]=100;
                                D1[o]=100;
                                D1[p]=100;
                                D1[q]=100;
                                return;
                            }
//all elements should be added
                            Else
printf("%d=%d+%d+%d+%d+%d+%d+%d+%d+%d+%d\n",a,D1[i],D1[j],D1[k],D1[l],D1[m],D1[n
],D1[o],D1[p],D1[q],D1[9]);
                                }
                            }

                            }
                        }
                    }
                }
            }
        }
    }
}
}
    return 0;
}
```