Codes of project (Problem Solving)

Problem 1

Last digit

[" https://www.geeksforgeeks.org/find-last-digit-given-series/ (https://www.geeksforgeeks.org/find-last-digit-given-series/) "]

In [ ]:
```
#include<stdio.h>
#include<math.h>
int main()
{ int i,j,n,b,s=0,a;
 scanf("%d",&n);
 for(i=0;pow(2,i)<=n;i++)
 {a=pow(2,i);
 for(j=0;j<=n;j++)
 {
 b=pow(2,(a+2*j));
  s=s+b;}}
 printf("%d",s%10);
 return 0;
}
```

Problem 2

Replace occurrences with the given words

[" https://www.geeksforgeeks.org/c-program-replace-word-text-another-given-word/ (https://www.geeksforgeeks.org/c-program-replace-word-text-another-given-word/) "]

In [ ]:
```c
#include<stdio.h>
#include<stdlib.h>
#include<string.h>
int main()
{
    char string[1010],a[30],b[30];
    scanf ("%s", a);
    scanf ("%s", b);
    fflush (stdin);
    scanf ("%[^\n]s", string);
    char *p;
    p = strtok (string, " ");
    while (p != NULL)
    {
        if (strcmp (a, p) == 0)
        printf ("%s ", b);
        else
        printf ("%s ", p);
        p = strtok (NULL, " ");
    }
return 0;
}
```

Problem 3

Bike tour

[" https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ffc8/00000000002d82e6 (https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ffc8/00000000002d82e6)"]

In [ ]:
```
t=int(input())
for i in range(1,t+1):
    n=int(input())
    a=list(map(int,input().split()))
    c=0
    for j in range(1,n-1):
        if (a[j-1]<a[j] and a[j+1]<a[j]):
            c+=1
    print("Case #"+str(i)+": "+str(c))
```

Problem 4

Robot Path Decoding

[" https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ffc8/00000000002d83dc (https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ffc8/00000000002d83dc)"]

In [ ]:
```
t=int(input())
for t in range(1, t+1):
    p=input()
    cur=[0, 0]
    stack=[]
    for char in p:
        if char=='N':
            cur[0] -= 1
        elif char == 'S':
            cur[0] += 1
        elif char == 'W':
            cur[1] -= 1
        elif char == 'E':
            cur[1] += 1
        elif char.isdigit():
            stack.append((cur[0], cur[1], int(char)))
        elif char == '(':
            cur = [0, 0]
        elif char == ')':
            pop = stack.pop()
            cur = [pop[i] + pop[2]*cur[i] for i in (e, 1)]
    final_row=(1+cur[0])%10**9
    if final_row == 0:
        final_row = 10**9

    final_column = (1+cur[1])%10**9
    if final_column == 0:
        final_column = 10**9
    print("Case #%d: %d %d" % (t, final_column, final_row))
```

Problem 5

Perfect subarray

["https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ff43/00000000003381cb (https://codingcompetitions.withgoogle.com/kickstart/round/000000000019ff43/00000000003381cb)"]

In [ ]:
```
import math
t=int(input())
for i in range(1,t+1):
    n=int(input())
    list1=list(map(int,input().split()))
    sublist = [math.sqrt(sum(list1[k:j]))-math.floor(math.sqrt(sum(list1[k:j])))==0 for k in range(len(list1)
+ 1)
                for j in range(k + 1, len(list1) + 1)]
    print("Case #"+str(i)+": "+str(sublist.count(1)))
```

Problem 6

Big city skylines

["https://static.googleusercontent.com/media/services.google.com/en//blog_resources/Google_CodeJam_Practice.pdf (https://static.googleusercontent.com/media/services.google.com/en//blog_resources/Google_CodeJam_Practice.pdf)"]

In [ ]:
```
n=int(input())
a=list(map(int,input().split()))
a1=[a[i] for i in range(0,len(a)) if i%2==0]
a2=[a[i] for i in range(0,len(a)) if i%2!=0]
print(sum(a1)*min(a2))
```

Problem 7

ATM

["https://www.codechef.com/problems/HS08TEST (https://www.codechef.com/problems/HS08TEST)"]

In [ ]:
```
n=input().split(' ');

k=float(n[1])
n1=int(n[0])
if(n1%5==0 and n1<=k-0.5):
    n1=float(n1)+0.5;
    k=k-n1;
    print("%.2f" % k)
else:
    print("%.2f" % k)
```

Problem 8

Cryptopangrams

["https://codingcompetitions.withgoogle.com/codejam/round/0000000000051705/000000000008830b (https://codingcompetitions.withgoogle.com/codejam/round/0000000000051705/000000000008830b)"]

In [ ]:
```
def gcd(a, b):
    while b != 0:
        a, b = b, a%b
    return a

T = int(input())
for t in range(T):
    N, L = map(int, input().split())
    a = list(map(int, input().split()))
    p = [0]*(L+1)
    for i in range(L-1):
        c = gcd(a[i], a[i+1])
        if c != a[i] and c != a[i+1]:
            p[i+1] = c
    for i in range(L):
        if p[i] != 0 and p[i+1] == 0:
            p[i+1] = a[i] // p[i]
    for i in range(L, 0, -1):
        if p[i] != 0 and p[i-1] == 0:
            p[i-1] = a[i-1] // p[i]
    b = sorted(set(p))
    d = dict()
    for i in range(26):
        d[b[i]] = chr(ord('A') + i)
    s = ""
    for i in p:
        s += d[i]
    print("Case #" + str(t+1) + ": " + s)
```