Infosys SE and DSE Today Paper Solutions (23-October-2021)

1. Alice and bob code (python)

```python
a=int(input())
b=int(input())
c=int(input())
d=int(input())
cu=0
for i in range(a*a,b*b+1):
    if i%c==0 and i %d==0 and str(c) in str(i) and str(d) in str(i):
        cu+=1
print(cu)
```

2. Beautiful Array (c++)

```cpp
class Solution {

public:

vector beautifulArray(int n) {

vectorans;

ans.push_back(1);

while(ans.size()<n)

{

vectort;

for(int i=0;i<ans.size();i++)

{

if(2ans[i]-1<=n)

{

t.push_back(2ans[i]-1);

}

}

for(int i=0;i<ans.size();i++)

{

if(2ans[i]<=n)

{

t.push_back(2ans[i]);

}

}
```

```
ans=t;

}

return ans;
```

3. Magic Button code

```python
if ((m == 0 and n == 0) or n == 0):

    return 1

if (m == 0):

    return 0

if (a[m - 1] == b[n - 1]):

    return (count(a, b, m - 1, n - 1) +

        count(a, b, m - 1, n))

else:

    return count(a, b, m - 1, n)
```

4. Count special numbers code (in C)

```c
#include <iostream>

using namespace std;

int main(){

string s;

getline(cin,s);

int count = 0;

for(int i = 0; s[i]!='\0'; i++){

if(s[i] >= 65 && s[i]<=90)

continue;

if(s[i] >=97 && s[i]<=122)

continue;

if(s[i] >=48 && s[i]<=57)

continue;

count++;

}

cout<<count<<endl;

return 0;

}
```

5. CalcMin Code (python)

```python
def calcmin(K,N,Q,S,P):
 sum=0
 if len(Q)==1:
  for i in P:
   if sum<Q[0]:
    sum=sum+P[i]
  return i+1
 elif len(Q)>1:
  i=0
  arr=[]
  while i<len(Q)-1:
   x=Q[i]
   for j in S,P:
    if S[j]==Q.index(x) and P[j]<x:
     if sum<x:
      sum=sum+P[j]
   i+=1
   arr.append(i)
 return max(arr)
```

6. Max Beauty

```python
import math

n = int(input())

a = []

for i in range(n):

a.append(int(input()))

ans = 0

for j in range(1, 1 << n):

index = 0

k = []

while(j != 0):

if (j & 1) == 1:

k.append(a[index])

index += 1

j = j >> 1

s = sum(k)

r = k[0]

for p in range(1, len(k)):

r = r | k[p]

m = (s/r)

ans = max(ans, m)

print(math.floor(ans*10000))
```

import math n = int(input()) a = [] for i in range(n): a.append(int(input())) ans = 0 for j in range(1, 1 << n): index = 0 k = [] while(j != 0): if (j & 1) == 1: k.append(a[index]) index += 1 j = j >> 1 s = sum(k) r = k[0] for p in range(1, len(k)): r = r | k[p] m = (s/r) ans = max(ans, m) print(math.floor(ans*10000))

7. Permutations code

C-language

```c
#include<stdio.h>

int main()

{

    int I,c=0,k=1;

    char str[1000];

    scanf(" %s",str);

    for(i=0; str[i]!='\0'; i++)

    {

            C++;

    }

    for(i=1; i<=c; i++)

    {

            K=k*I;

    }

    Printf("%d",k);

    Return 0;

}
```

Python

```python
from itertools import permutations
val=int(input())
f_list=[' '.join(p) for p in permutations(str(val))]
f_list.sort()
small=int(f_list[0])
large=int(f_list[len(f_list)-1])
print(small+large)
```