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/*amortized alorithm implementation*/
#include<stdio.h>
#include<conio.h>

long int a[20],b[20];

void main()
{
    int n,i,l,d;
    long int ci=0,cip=0,ti=0,ai=0,counter=0,fav=0;
    long int max=1,j,num,k;
    printf("Enter number of digits for representation :- ");
    scanf("%d",&n);
    for(i=1;i<=n;i++)
        max*=2;
    printf("\nMax value is :- %ld",max);
    printf("\nValue\tbin\tci\tti\tai\n");
    for(j=0;j<=max;j++)
    {
        num=j;
        l=19;
        while(num!=0)
        {
            k=num%2;
            num/=2;
            a[l]=k;
            l--;
        }
        for(i=20-n;i<20;i++)
        {
            if(a[i]!=b[i])
                ti++;
        }
        for(i=20-n;i<20;i++)
        {
            if(a[i]==1)
                ci++;
        }
        ai=ti+ci-cip;
        counter+=ai;
        printf("%ld\t",j);
        d=20-n;
        for(i=d;i<20;i++)
            printf("%ld",a[i]);
        printf("%ld\t%ld\t%ld\n",ci,ti,ai);
        for(i=0;i<20;i++)
            b[i]=a[i];
        cip=ci;
        ci=0;
        ti=0;
        ai=0;
    }
    fav=counter/max;
    printf("\n%ld",fav);
}

```