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#include <stdio.h>
#include <string>
main(void)
{
    char z,x;
    int i,j,n=0,h,w,inspos,delpos,f;
    char Name[100][12],Namein[12],hdata[5];
    char LastName[100][12],LastNamein[12];
    int Height[100],Weight[100];
    double MassIndex[100],Mindex;
    FILE *INPUTDATA = fopen("ListData.txt","r");
    fscanf(INPUTDATA,"%c",&x);
    while(x!='\n')
    {
        fscanf(INPUTDATA,"%c",&x);
    }
    printf("\n");
    fscanf(INPUTDATA,"%c",&z);
    printf("%c\n",z);
    while(z!='#')
    {
        printf("%5d\n",n);
        if(z=='+')
        {
            for(i=1;i<=14;i++) fscanf(INPUTDATA,"%c",&x);
            for(i=1;i<=12;i++)
            {
                fscanf(INPUTDATA,"%c",&Namein[i]);
                printf("%c",Namein[i]);
            }
            for(i=1;i<=12;i++)
            {
                fscanf(INPUTDATA,"%c",&LastNamein[i]);
                printf("%c",LastNamein[i]);
            }
            fscanf(INPUTDATA,"%d%d",&h,&w);
            Mindex=w/((h/100.0)*(h/100.0));
            printf("%6d%5d",h,w);
            if(n==0)
            {
                n=n+1;
                for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                Height[n]=h;
                Weight[n]=w;
                MassIndex[n]=Mindex;
            }
            } else if(n==1)
            {
                if(Mindex>MassIndex[n])
                {
                    for(i=1;i<=12;i++) Name[n+1][i]=Name[n][i];
                    for(i=1;i<=12;i++) LastName[n+1][i]=LastName[n][i];
                    Height[n+1]=Height[n];
                    Weight[n+1]=Weight[n];
                    MassIndex[n+1]=MassIndex[n];
                    for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                    for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                    Height[n]=h;
                    Weight[n]=w;
                    MassIndex[n]=Mindex;
                    n=n+1;
                }
            } else
            {
                n=n+1;
                for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                Height[n]=h;
                Weight[n]=w;
                MassIndex[n]=Mindex;
            }
        }
    }
}

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{
    inspos=0;
    if(Mindex>MassIndex[1])
    {
        inspos=1;
    } else if(Mindex<MassIndex[n])
    {
        inspos=n+1;
    } else
    {
        for(i=1;i<n;i++)
        {
            if((Mindex<MassIndex[i])&&(Mindex>=MassIndex[i+1]))
            {
                inspos=i+1;
            }
        }
    }
    if (inspos>n)
    {
        n=n+1;
        for(i=1;i<=12;i++) Name[inspos][i]=Namein[i];
        for(i=1;i<=12;i++) LastName[inspos][i]=LastNamein[i];
        Height[inspos]=h;
        Weight[inspos]=w;
        MassIndex[inspos]=Mindex;
    } else
    {
        for(i=n;i>=inspos;i--)
        {
            for(j=1;j<=12;j++) Name[i+1][j]=Name[i][j];
            for(j=1;j<=12;j++) LastName[i+1][j]=LastName[i][j];
            Height[i+1]=Height[i];
            Weight[i+1]=Weight[i];
            MassIndex[i+1]=MassIndex[i];
        }
        for(j=1;j<=12;j++) Name[inspos][j]=Namein[j];
        for(j=1;j<=12;j++) LastName[inspos][j]=LastNamein[j];
        Height[inspos]=h;
        Weight[inspos]=w;
        MassIndex[inspos]=Mindex;
        n=n+1;
    }
}
}
if(z=='-')
{
    fscanf(INPUTDATA,"%c",&x);
    if(x=='+')
    {
        for(i=1;i<n;i++)
        {
            for(j=1;j<=12;j++) Name[i][j]=Name[i+1][j];
            for(j=1;j<=12;j++) LastName[i][j]=LastName[i+1][j];
            Height[i]=Height[i+1];
            Weight[i]=Weight[i+1];
            MassIndex[i]=MassIndex[i+1];
        }
        n=n-1;
    } else if (x=='-')
    {
        n=n-1;
    } else
    {
        for(i=1;i<=13;i++) fscanf(INPUTDATA,"%c",&x);
        for(i=1;i<=12;i++)
        {
            fscanf(INPUTDATA,"%c",&Namein[i]);
            printf("%c",Namein[i]);
        }
    }
}

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for(i=1;i<=12;i++)
{
    fscanf(INPUTDATA,"%c",&LastNamein[i]);
    printf("%c",LastNamein[i]);
}
fscanf(INPUTDATA,"%d",&h,&w);
Mindex=w/((h/100.0)*(h/100.0));
printf("%6d%5d",h,w);
delpos=0;
if(Namein[1]!='0')
{
    for(i=1;i<=n;i++)
    {
        f=1;
        for(j=1;j<=12;j++) if(Namein[j]!=Name[i][j]) f=0;
        if (f=1) delpos=i;
    }
} else if(LastNamein[1]!='0')
{
    for(i=1;i<=n;i++)
    {
        f=1;
        for(j=1;j<=12;j++) if(LastNamein[j]!=LastName[i][j]) f=0;
        if (f=1) delpos=i;
    }
} else if(h!=0)
{
    for(i=1;i<=n;i++)
    {
        if(h==Height[i]) delpos=i;
    }
} else if(w!=0)
{
    for(i=1;i<=n;i++)
    {
        if(w==Weight[i]) delpos=i;
    }
}
for(i=delpos;i<n;i++)
{
    for(j=1;j<=12;j++) Name[i][j]=Name[i+1][j];
    for(j=1;j<=12;j++) LastName[i][j]=LastName[i+1][j];
    Height[i]=Height[i+1];
    Weight[i]=Weight[i+1];
    MassIndex[i]=MassIndex[i+1];
}
n=n-1;
}
}
fscanf(INPUTDATA,"%c",&x);
while (x!='\n')
{
    fscanf(INPUTDATA,"%c",&x);
}
fscanf(INPUTDATA,"%c",&z);
printf("\n%c\n",z);
}
printf("\n-----");
printf("\nThe number of elements in the list is = %5d\n\n",n);
printf("No Name   LastName   Height   Weight   Index\n");
printf("-----\n");
for(i=1;i<=n;i++)
{
    printf("%2d ",i);
    for(j=1;j<=12;j++) printf("%c",Name[i][j]);
    for(j=1;j<=12;j++) printf("%c",LastName[i][j]);
    printf("%6d%10d%7.2f\n",Height[i],Weight[i],MassIndex[i]);
}
return(0);
}

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#include <stdio.h>
#include <string>
main(void)
{
    char z,x;
    int i,j,n=0,h,w,inspos,delpos,f;
    char Name[100][12],Namein[12],hdata[5];
    char LastName[100][12],LastNamein[12];
    int Height[100],Weight[100];
    double MassIndex[100],Mindex;
    FILE *INPUTDATA = fopen("ListData.txt","r");
    fscanf(INPUTDATA,"%c",&x);
    while(x!='\n')
    {
        fscanf(INPUTDATA,"%c",&x);
    }
    printf("\n");
    fscanf(INPUTDATA,"%c",&z);
    printf("%c\n",z);
    while(z!='#')
    {
        printf("%5d\n",n);
        if(z=='+')
        {
            for(i=1;i<=14;i++) fscanf(INPUTDATA,"%c",&x);
            for(i=1;i<=12;i++)
            {
                fscanf(INPUTDATA,"%c",&Namein[i]);
                printf("%c",Namein[i]);
            }
            for(i=1;i<=12;i++)
            {
                fscanf(INPUTDATA,"%c",&LastNamein[i]);
                printf("%c",LastNamein[i]);
            }
            fscanf(INPUTDATA,"%d%d",&h,&w);
            Mindex=w/((h/100.0)*(h/100.0));
            printf("%6d%5d",h,w);
            if(n==0)
            {
                n=n+1;
                for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                Height[n]=h;
                Weight[n]=w;
                MassIndex[n]=Mindex;
            }
            } else if(n==1)
            {
                if(Mindex>MassIndex[n])
                {
                    for(i=1;i<=12;i++) Name[n+1][i]=Name[n][i];
                    for(i=1;i<=12;i++) LastName[n+1][i]=LastName[n][i];
                    Height[n+1]=Height[n];
                    Weight[n+1]=Weight[n];
                    MassIndex[n+1]=MassIndex[n];
                    for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                    for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                    Height[n]=h;
                    Weight[n]=w;
                    MassIndex[n]=Mindex;
                    n=n+1;
                }
            } else
            {
                n=n+1;
                for(i=1;i<=12;i++) Name[n][i]=Namein[i];
                for(i=1;i<=12;i++) LastName[n][i]=LastNamein[i];
                Height[n]=h;
                Weight[n]=w;
                MassIndex[n]=Mindex;
            }
        }
    }
} else if(n>1)

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{
    inspos=0;
    if(Mindex>MassIndex[1])
    {
        inspos=1;
    } else if(Mindex<MassIndex[n])
    {
        inspos=n+1;
    } else
    {
        for(i=1;i<n;i++)
        {
            if((Mindex<MassIndex[i])&&(Mindex>=MassIndex[i+1]))
            {
                inspos=i+1;
            }
        }
    }
    if (inspos>n)
    {
        n=n+1;
        for(i=1;i<=12;i++) Name[inspos][i]=Namein[i];
        for(i=1;i<=12;i++) LastName[inspos][i]=LastNamein[i];
        Height[inspos]=h;
        Weight[inspos]=w;
        MassIndex[inspos]=Mindex;
    } else
    {
        for(i=n;i>=inspos;i--)
        {
            for(j=1;j<=12;j++) Name[i+1][j]=Name[i][j];
            for(j=1;j<=12;j++) LastName[i+1][j]=LastName[i][j];
            Height[i+1]=Height[i];
            Weight[i+1]=Weight[i];
            MassIndex[i+1]=MassIndex[i];
        }
        for(j=1;j<=12;j++) Name[inspos][j]=Namein[j];
        for(j=1;j<=12;j++) LastName[inspos][j]=LastNamein[j];
        Height[inspos]=h;
        Weight[inspos]=w;
        MassIndex[inspos]=Mindex;
        n=n+1;
    }
}
}
}
if(z=='-')
{
    fscanf(INPUTDATA,"%c",&x);
    if(x=='+')
    {
        for(i=1;i<n;i++)
        {
            for(j=1;j<=12;j++) Name[i][j]=Name[i+1][j];
            for(j=1;j<=12;j++) LastName[i][j]=LastName[i+1][j];
            Height[i]=Height[i+1];
            Weight[i]=Weight[i+1];
            MassIndex[i]=MassIndex[i+1];
        }
        n=n-1;
    } else if (x=='-')
    {
        n=n-1;
    } else
    {
        for(i=1;i<=13;i++) fscanf(INPUTDATA,"%c",&x);
        for(i=1;i<=12;i++)
        {
            fscanf(INPUTDATA,"%c",&Namein[i]);
            printf("%c",Namein[i]);
        }
    }
}

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for(i=1;i<=12;i++)
{
    fscanf(INPUTDATA,"%c",&LastNamein[i]);
    printf("%c",LastNamein[i]);
}
fscanf(INPUTDATA,"%d",&h,&w);
Mindex=w/((h/100.0)*(h/100.0));
printf("%6d%5d",h,w);
delpos=0;
if(Namein[1]!='0')
{
    for(i=1;i<=n;i++)
    {
        f=1;
        for(j=1;j<=12;j++) if(Namein[j]!=Name[i][j]) f=0;
        if (f=1) delpos=i;
    }
} else if(LastNamein[1]!='0')
{
    for(i=1;i<=n;i++)
    {
        f=1;
        for(j=1;j<=12;j++) if(LastNamein[j]!=LastName[i][j]) f=0;
        if (f=1) delpos=i;
    }
} else if(h!=0)
{
    for(i=1;i<=n;i++)
    {
        if(h==Height[i]) delpos=i;
    }
} else if(w!=0)
{
    for(i=1;i<=n;i++)
    {
        if(w==Weight[i]) delpos=i;
    }
}
for(i=delpos;i<n;i++)
{
    for(j=1;j<=12;j++) Name[i][j]=Name[i+1][j];
    for(j=1;j<=12;j++) LastName[i][j]=LastName[i+1][j];
    Height[i]=Height[i+1];
    Weight[i]=Weight[i+1];
    MassIndex[i]=MassIndex[i+1];
}
n=n-1;
}
}
fscanf(INPUTDATA,"%c",&x);
while (x!='\n')
{
    fscanf(INPUTDATA,"%c",&x);
}
fscanf(INPUTDATA,"%c",&z);
printf("\n%c\n",z);
}
printf("\n-----");
printf("\nThe number of elements in the list is = %5d\n\n",n);
printf("No Name   LastName   Height   Weight   Index\n");
printf("-----\n");
for(i=1;i<=n;i++)
{
    printf("%2d ",i);
    for(j=1;j<=12;j++) printf("%c",Name[i][j]);
    for(j=1;j<=12;j++) printf("%c",LastName[i][j]);
    printf("%6d%10d%7.2f\n",Height[i],Weight[i],MassIndex[i]);
}
return(0);
}

```