1. Untuk keperluan pendataan 100 calon pegawai, staff bagian kepegawaian Universitas Maju Bersama memerlukan informasi data pelamar antara lain sebagai berikut :

1. Nama
2. Nomor Induk Kependudukan
3. Tanggal Lahir
4. Jenis Kelamin
5. Alamat Rumah
6. Email
7. Nomor HP

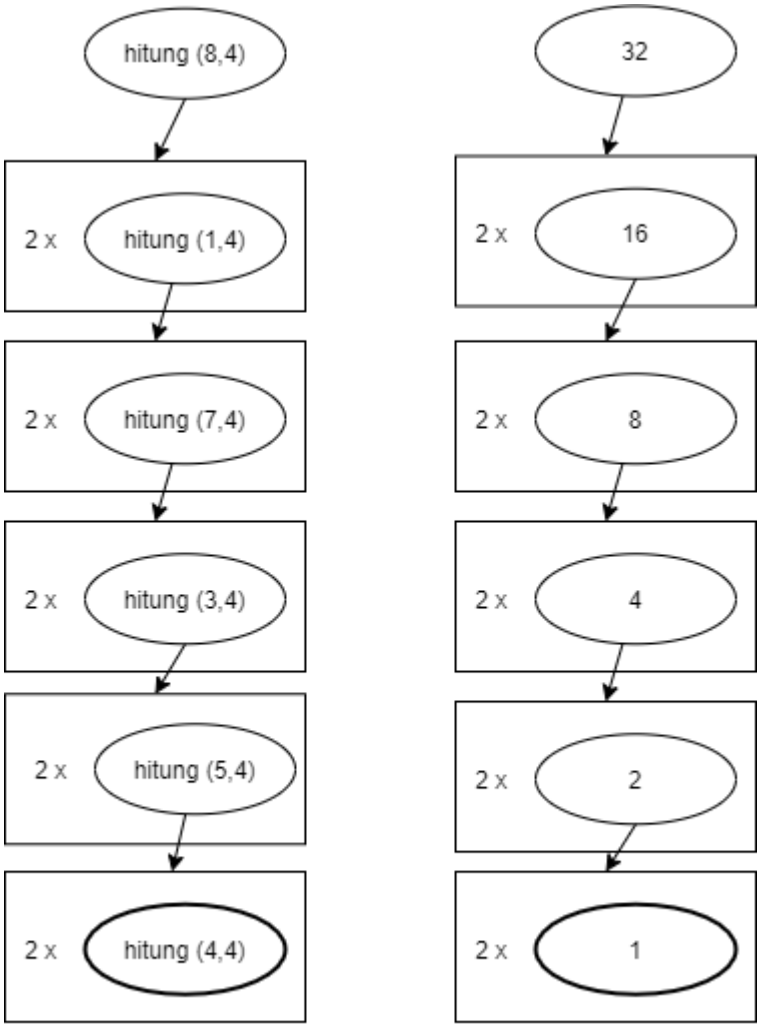
```
enum JenisKelamin {Pria, Wanita};

struct Alamat {
    string jalan;
    string rt_rw;
    string kelurahan;
    string kecamatan;
};

struct DataPelamar {
    string nama;
    char nik[16];
    //long long nik;
    string tanggal_lahir; //ISO Format YYYY-MM-DD
    JenisKelamin jenis_kelamin;
    //char jenis_kelamin[1] = 'L' / 'P' juga bisa
    Alamat alamat;
    string email;
    string nomor_telepon;
};

int main(){
    DataPelamar dataPelamar[100];
}
```

2.

```
int e[10] = {6, 7, 4, 5, -1, 4, -1, 3, 1, 9};
```

Jawab

a. hitung(8,4) #32

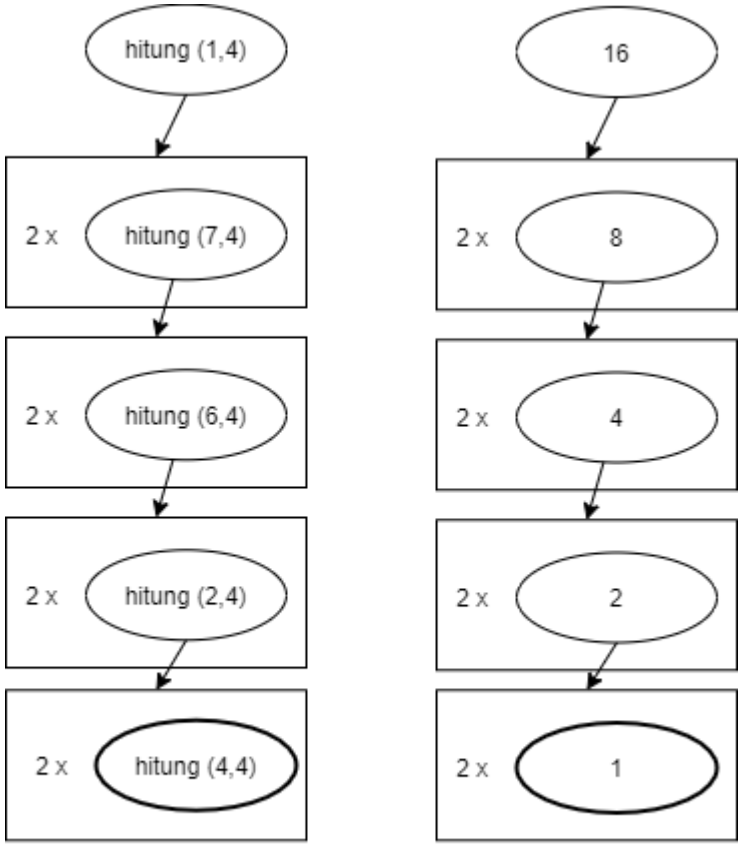


hitung (4,4) = 1

b.

```
int e[10] = {6, 7, 4, 5, 1, 4, 2, 6, -1, 8}
```

hitung(1, 4) #16



hitung (4,4) = 1

3. Jika diketahui array of struct <nama, nilai> = {(budi, 70), (iwan, 81), (wati, 83), (Kaka, 75), (celine, 69)}, nilai huruf A apabila nilai >= 80 dan nilai B apabila nilai >= 60 dan < 80, buatlah sebuah program menghitung persentase mahasiswa yang mendapatkan nilai A dan B.

Contoh Output :
A : 40%
B : 60%

Pseudocode
1. hist(arrNilai) hitung freq dengan batas A (x>=80), B (79>x>=60)
2. Normalize to Probability Density
3. Output
    P(A)*100 + '%'
    P(B)*100 + '%'

4. Create a program to calculate the frequency of students grades from a set of grades. Student grades can be in the range between 0 to 100. The program will read variable N, which is then followed by the reading N numbers. The program will write students grades in ascending order along with its frequency separated by spaces.

Sample Input:
10
89 89.5 90 90.5 89.5 80 89 80 89.5 90

Sample Output:
80 2
89 2
89.5 3
90 2
90.5 1

Pseudocode

1. sort(arrNilai)
// arrNilai menjadi urut
// 80 80 89 89 89.5 89.5 89.5 90 90 90.5

2. mulai dari 0, for loop cek cek sebelah kanan
apabila sama dengan current
    frequency++
apabila berbeda
    output(current frequency)
    current = angka sebelah kanan
    frequency = 1

5. Given the following program

```
#include<iostream>
#include<cmath>
int n = 15;
int data[15] = {13,17,25,28,30,41,45,56,58,64,73,76,87,91,98};
int L=0; int R=n-1;
int buffer=0;

int main (){
    int findx;

    while (L<=R) {
        int M = floor((L+R)/2);
        buffer = buffer + data[M];

        if (data[M]==findx){
            break;
        } else if(data[M]<findx) {
            L = M+1;
        } else {
            R = M-1;
        }
    }
}
```

Determine the value of the buffer variable after executing the program if the value of findx variable:

a. 100 #321

i = 0, L = 8, R = 14, M = 7, Buffer = 56

i = 1, L = 12, R = 14, M = 11, Buffer = 56 + 76

i = 2, L = 14, R = 14, M = 13, Buffer = 56 + 76 + 91

i = 3, L = 15, R = 14, M = 14, Buffer = 56 + 76 + 91 + 98

b. 64 #196

i = 0, L = 8, R = 14, M = 7, Buffer = 56

i = 1, L = 8, R = 10, M = 11, Buffer = 56 + 76

i = 2, L = -, R = -, M = 9, Buffer = 56 + 76 + 64

c. 10 #114

i = 0, L = 0, R = 6, M = 7, Buffer = 56

i = 1, L = 0, R = 2, M = 3, Buffer = 56 + 28

i = 2, L = 0, R = 0, M = 1, Buffer = 56 + 28 + 17

i = 3, L = 0, R = -1, M = 0, Buffer = 56 + 28 + 17 + 13