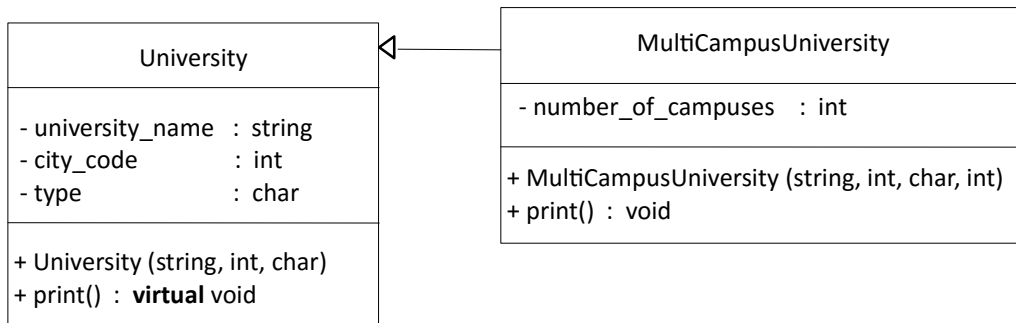


Assignment Date : 9/5/2023
Due Date : 23/5/2023 at 23:59

- Student must do the homework without getting any help or collaboration.
- If significant similarities are found between submitted files, it will be considered as plagiarism, and those homework grades will be zero.
- File should be submitted to Ninova only, email submissions are not accepted.
- Your solution should be in one *.cpp file, without programmer-defined *.h header files.
- Program should work without compiler errors and give correct results as expected.

CLASSES

- Write C++ codes for the UML class and inheritance diagrams below. (+ is public, - is private)
- Parametered constructor functions initialize the member datas.
- The print functions display the member datas on screen.



MAIN PROGRAM

Write a C++ program to do followings.

- By looping and using C++ file input statements, read all records from the file named **"cities.txt"**. File contains city codes and names. Define a STL map (C++ Standard Template Library), and store all city datas read from file, into the map.
- Read all records from the file named **"universities.txt"**. Fields in file are separated by semicolon symbol (;) in the order given below.
University Name ; City Code ; University Type ; Number of Campuses
City Code field is integer.
University Type field is one character (S : State, F : Foundation).
Number of Campuses field exists only for MultiCampusUniversity category records.
Your program should be general, so that it can work for any number of records in data files.
- Declare a STL vector of pointers (**polymorphic**) for the base class (University class). Dynamically allocate University objects and MultiCampusUniversity objects for datas read from the file, and store their pointers (memory addresses) in the vector.
- By using the vector and the map, generate the following screen output, printed by university categories.
- User should not enter any data inputs from keyboard, program reads datas from files and pass to class constructors.
- Use built-in setw function to obtain column alignments on screen output.
- Use built-in setlocale function to display Turkish texts on screen output.
- Use built-in char(254) function to display "■" symbol for histograms.

EXAMPLE SCREEN OUTPUT

```

ONE-CAMPUS UNIVERSITIES :
University Name          City          Type
1 AFYON KOCATEPE ÜNİVERSİTESİ  Afyonkarahisar State
2 AKSARAY ÜNİVERSİTESİ        Aksaray      State
3 AMASYA ÜNİVERSİTESİ         Amasya       State
4 BOĞAZİÇİ ÜNİVERSİTESİ       İstanbul     State
5 BOLU ABANT İZZET BAYSAL ÜNİVERSİTESİ  Bolu         State
6 ÇANAKKALE ONSEKİZ MART ÜNİVERSİTESİ    Çanakkale    State
7 ÇANKIRI KARATEKİN ÜNİVERSİTESİ  Çankırı     State
8 ÇUKUROVA ÜNİVERSİTESİ       Adana        State
9 DOKUZ EYLÜL ÜNİVERSİTESİ     İzmir        State
10 ESKİŞEHİR OSMANGAZİ ÜNİVERSİTESİ  Eskişehir    State
11 GALATASARAY ÜNİVERSİTESİ    İstanbul     State
12 GEBZE TEKNİK ÜNİVERSİTESİ    Kocaeli      State
13 İNÖNÜ ÜNİVERSİTESİ         Malatya      State
    
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