

Lab 13 (Polymorphism)

OOP – BCS

In given scenario, every bold phrase/ word represents a class, where parent classes are not mentioned but required. You have to create all required classes. In the main function, create 7-8 different types of apartments using the functions of apartment class. Call describe function of apartment to show details of apartments. Call change furnishing function for 3-4 apartments and call describe function for those apartments to show new details of apartments. At the end see sample output for better understanding of describe and show functions. (*To secure full marks, write every class in separate file*)

Create a class **Apartment** having apartment number, room & furnishing. Room is fixed for each apartment, however furnishing can be changed at any time. Write following member function in apartment class:

- constructor assign null to room and furnishing
- assignRoom the function has one integer parameter (possible value of parameter is 1-4). The function will create an appropriate room according to the parameter.
- assignFurnishing the function has one integer parameter (possible value of parameter is 1-3). The function will create appropriate furnishing according to the parameter.
- describe in the case of null assignment, show details are missing. This function will describe apartment by calling print function of room & furnishing
- changeFurnishing the function will remove previous furnishing and set new furnishing
- destructor the function will remove dynamic memory

In apartment there can be 4 types of rooms:

Single Room with Attached Kitchen

One very large room of size 15 x 18.

Single Room with Separate Kitchen

One large room of size 15 x 15 and separate kitchen of size 6 x 10.

Double Room with Attached Kitchen

One large room of size 15 x 15 with an attached kitchen and one medium room of size 12 x 12.

Double Room with Separate Kitchen

Two medium rooms of size 12 x 12 and separate kitchen of size 8 x 12.

Each room has a print function to print its description without line feed (don't use \n or endl).

There can be following 3 types of furnishing:

- No Furnishing:** The room has no furnishing.
- Bed_Table Furnishing:** The room has bed and table furnishing
- Bed_Sofa_Table Furnishing:** The room has bed, sofa and table furnishing

Every furnishing has a print function to print its type with line feed (after printing move to next line).

Sample Output:

Apartment no 1 has one very large room of size 15 x 18 with attached kitchen. The room is furnished with a bed and table.

Apartment no 2 has one large room of size 15 x 15 and separate kitchen of size 6 x 10. The room is furnished with a bed, sofa and table.

Apartment no 3 has two medium rooms of size 12 X 12 and separate kitchen of size 8 x 12. The room is furnished with a bed and table.

Apartment no 4 has one large room of size 15 x 15 with attached kitchen and one medium room of size 12 x 12. The furnishing details are missing.

Apartment no 2 has one large room of size 15 x 15 and separate kitchen of size 6 x 10. The room has bed, sofa and table.

END OF LAB (Best of Luck)
