All cameras have common characteristics including a manufacturer, model, and lens type. Cameras provide their users a way to take and store pictures. Because picture storage is limited, a user cannot take pictures if they are out of storage.

Two common types of cameras are Analog, which store pictures on film, and Digital, which store pictures on memory cards. Film is limited by the number of pictures that can fit on a film roll and memory cards are limited by the storage size in megabytes (MB).

Camera Type	Attributes	Behavior
All	**Manufacturer** **Model** **Lens Type**	**Take Picture** – all cameras take pictures, but each camera stores the pictures in a different way.
Analog	**Pictures Remaining** – the number of remaining pictures that can be taken with the current loaded film roll.	**Load Film Roll** – load camera with a film roll of a given size, which determines how many pictures can be taken. The number of pictures that can be taken is reset to the roll size when it is loaded. **Take Picture** – if the number of pictures taken thus far is less than the current roll size, the picture can be taken and the method returns true. If the number of pictures taken is equal to the current roll size, the picture cannot be taken and the method returns false. To continue taking pictures the camera must be loaded with a new roll.
Digital	**Picture size in MB** – the size in MB for each picture taken. **MB Remaining on Card** – the amount of storage in MB remaining on the current memory card.	**Insert Memory Card** – inserts a blank memory card of a given size in MB. The MB remaining on the card is reset to the memory card size. **Take Picture** – if the camera's picture size in MB is less than or equal to the remaining MB on the memory card, the picture can be taken and the method returns true.

		If the camera's picture size in MB is greater than the remaining MB on the memory card, the picture cannot be taken and method returns false. To continue taking pictures, a new memory card must be inserted.

Part A

Lens Type has a finite number of legal values: Fisheye, Wide Angle, Standard, Telephoto, Macro.

Implement a Java Type for a Lens Type.

Part B

Implement each of the camera types in an appropriate class hierarchy using appropriate encapsulation, attribute/method modifier, annotations, abstraction, and inheritance techniques.