Q1. What is the difference between \_\_getattr\_\_ and \_\_getattribute\_\_?

Ans: the key differences between \_\_getattr\_\_ and \_\_getattribute\_\_ are their timing of invocation and the specific purpose for which they are intended. While \_\_getattr\_\_ is invoked only when an attribute is not found by normal lookup, \_\_getattribute\_\_ is called for every attribute access, regardless of whether the attribute exists or not.

Q2. What is the difference between properties and descriptors?

Ans: properties are a specific implementation of the descriptor protocol, providing a simplified way to define computed attributes, while descriptors offer a more general and powerful mechanism for controlling attribute access at the class level, allowing for more reusable and versatile customization.

Q3. What are the key differences in functionality between \_\_getattr\_\_ and \_\_getattribute\_\_, as well as properties and descriptors?

Ans: the differences lie in the level and scope of control provided by each mechanism. \_\_getattr\_\_ and properties are more specific, allowing customization at the attribute level, while \_\_getattribute\_\_ and descriptors offer more generalized and versatile control at the class level.