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# Encapsulation

Q1: What is Encapsulation in Java? Why is it called Data hiding?

Ans → Encapsulation in Java is the building of data & methods within a class, and its called 'data hiding' because it restricts direct access to the internal state of an object, allowing controlled access through methods.

Q2: What are the Important features of Encapsulation?

Ans → features of Encapsulation.

1. Data hiding.
2. Access control.
3. Modularity.
4. flexibility.
5. Security.
6. Abstraction.

Q3: What are getter and setter methods in Java Explain with an example.

Ans → Getters & setters are methods used in object-oriented programming to access and modify the private fields (attributes) of a class.

```
public class Person {
    private String name;
public String getName() {
        return name; }

public void SetName (String newName) {
        this.name = newName;
} }.
```

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Q4: what is the use of 'this' keyword explain with an example.

Ans 'this' keyword refers to the current instance of the class and it used to differentiate b/w instance variables and local variables with same name.

```
public class MyClass {
    private int value;

    public MyClass(int value) {
        this.value = value;
    }
}
```

Q5: what is the advantage of Encapsulation?

Ans → ① security: Protects the integrity of data by controlling access.

② flexibility: Allows changes to internal implementation without affecting external code.

③ Modularity: organizes code into self-contained units (classes).

④ Abstraction: Hides complex implementation details exposing only essential features.

Q6: How to achieve encapsulation in Java? Give an example.

Ans → ① Make class fields as private.

② provide public Methods like getters & setters

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Example

```
public class Example {
    private int data;
    public int getData() {
        return data;
    }
    public void setData(int newData) {
        this.data = newData;
    }
}
```