**Exercise 3**

**A:** - When a class doesn’t know what type of object it needs to create in advance.

* When a class wants its child classes to decide which object to create.

-When a class passes the responsibility of object creation to helper classes, and you want to control which helper class does the job.

**B:**

| **Participant** | **Description** |
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| **Product** | Defines the interface of objects the factory method creates. |
| **ConcreteProduct** | Implements the Product interface. Represents specific instances of the Product. |
| **Creator** | Declares the factory method that returns an object of type Product. |
| **ConcreteCreator** | Implements the factory method to return an instance of the specific ConcreteProduct. |

**C:**

| **Factory Pattern Participant** | **Program Name (from my code)** |
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| **Product** | NumberList.java |

|  |  |
| --- | --- |
| **ConcreteProduct** | IntList.java, DoubleList.java, HexList.java |

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| **Creator** | NumberFactory.java |

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| **ConcreteCreator** | The getNumberList method in NumberFactory.java that returns instances of IntList, DoubleList, or HexList. |