

Mission 4 Test Questions ... SID 103636725

The literal meaning of Polymorphism means “many forms” . In the case of object programming it is also connected to another OOP feature called inheritance. Except Polymorphism takes those inherited values and uses them to create new values or run different methods. Polymorphism is a run-time concept that controls whether a child-class method is executed, rather than the base-class method of the same name.

In the example of the Library Program, we have created a `LibraryResource` class which pass on common values to `Game` and `Book` class such as `_name` and `_onLoan`. We could also easily add other objects/classes such as `video` or `magazine` etc which could also inherit values of `Library resource`. This is similar to another project where we had `mycircle` and `myrectangle` which inherited common values and used polymorphism from the `shape` class. `Libraryresources` also uses the polymorphism to provide an `onloan true/false` value back to the `library class` `HasResource` method which is used by `main` to print if `book` or `game` is in the library `true` or `false`.

In book.cs the name field is inherited from Library Resource

Book.cs (extract)

```
class Book : LibraryResource
```

```
public Book(string name, string author, string isbn) : base(name)
```

LibraryResource.cs

```
abstract class LibraryResource {
```

```
private string _name;
```

```
private bool _onLoan;
```

 $\{$

library.cs

```
public bool HasResource(string name) <<<<<<<<<<Polymorphism
```

 $\{$

```
foreach (LibraryResource resource in _resources)
```

Program.cs

```
Book book 1 = new Book("Brave New World", "Huxley", "43251364066");
```

```
book_1.OnLoan = false;
```

```
Console.WriteLine("Brave New World is available?: " + library.HasResource("Brave New World"));
```

Data **abstraction** is the process of hiding certain details and showing only essential information to the user.

Abstraction can be achieved with either **abstract classes** or [interfaces](#)

E,g book at abstract level is just a book without features we can check if book is on loan or not and go through all book's but we don't need to know all the attributes of the book or game.