

## Implement a dispatch execution class with sub-system locks

You have a dispatch queue. This is a standard producer-consumer concurrent queue. All tasks in the queue have a Task interface (see below). The tasks have a LocksNeeded flag. There are three lock flags [FileSystem, Database, Model]. When a consumer thread requests a task to execute, the dispatch system will ensure the thread has the locks requested in the LocksNeeded flag set. Ensure that the system is efficient and free of deadlocks.

```
#define FLAGS_NO_LOCK 0
```

```
#define FLAGS_FILESYSTEM_LOCK 1
```

```
#define FLAGS_DATABASE_LOCK 2
```

```
#define FLAGS_MODEL_LOCK 4
```

```
interface Task
```

```
{
```

```
int GetFlags();
```

```
void Run();
```

```
}
```