

Operation Queues

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Introduction

Operation Queues

NSOperations

Interoperation
Dependencies

Operation Execution

What is an Operation Queue?

- Not First In, First Out
- Instance of `NSOperationQueue`
- Stores `NSOperation` objects
- Always execute concurrently



NSOperation

NSBlockOperation

```
int (^squareBlock)(int) = ^int(int num) {  
    return num * num;  
};
```

- (void) addDependency: (NSOperation *)operation
- (void) setCompletionBlock: (void (^)(void))block
- (void) setQueuePriority: (NSOperationQueuePriority)priority

NSOperation

- **Two Concrete Subclasses**
 - NSInvocationOperation
 - NSBlockOperation
- **Create Custom Subclasses**
- **Key-Value Observing Compliant**
- **Supports Dependencies with Other Operations**
- **Set Execution Priority**
- **Supports Cancellation**
- **Executable Completion Blocks**

KVO Compliance

- isCancelled
- isConcurrent
- isExecuting
- isFinished
- isReady
- dependencies
- queuePriority
- completionBlock

Interoperation Dependencies

Executing

Dispatch Queue

Task 5

Task 4

Task 3

Task 2

Task 1

NSOperationQueue

Task 4

Task 3

Task 2

Task 1



Execution Priority

```
NSBlockOperation *buyTicketsOp = [NSBlockOperation blockOperationWithBlock:^(  
    //do some work here  
});  
[buyTicketsOp setQueuePriority:NSOperationQueuePriorityHigh];
```




```
NSBlockOperation *buyTicketsOp = [NSBlockOperation blockOperationWithBlock:^(  
    //do some work here  
});  
[buyTicketsOp setThreadPriority:0.5];
```




Cancelling Operations

```
NSBlockOperation *buyTicketsOp = [NSBlockOperation blockOperationWithBlock:^(  
    //do some work here  
)];  
[buyTicketsOp cancel];
```

An orange arrow pointing to the left, positioned to the right of the line of code '[buyTicketsOp cancel];'.

```
NSOperationQueue *operationQueue = [[NSOperationQueue alloc] init];  
[operationQueue cancelAllOperations];
```

An orange arrow pointing to the left, positioned to the right of the line of code '[operationQueue cancelAllOperations];'.

Completion Blocks

```
NSBlockOperation *buyTicketsOp = [NSBlockOperation blockOperationWithBlock:^(  
    //do some work here  
});  
  
[buyTicketsOp setCompletionBlock:^(  
    NSLog(@"Some work was completed!");  
});
```



Summary

- **NSOperationQueues**
- **NSOperations**
- **Inter-Operation Dependencies**
- **KVO Notifications**
- **Completion Blocks**
- **Cancellation**