PROMISES PROMISES…

@superstructor (On GitHub / Twitter)

Promises

DEFTJS TEAM

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SYNC VS ASYNC

```
function add(a, b) {
  var result = a + b;
  return result;
}

console.log( add(2, 2) );
// 4
```

```
function asyncAdd(a, b, callback) {
  setTimeout(function() {
    var result = a + b;

    callback(result);

  }, 500);
}

asyncAdd(2, 2, function(result) {
  console.log(result); // 4
});
```

SYNC VS ASYNC RETURN VALUES

```
function multiply(a, b) {
  return a * b;
}

function add(a, b) {
  return a + b;
}

console.log(
  multiply(add(2, 2), 2)
); // 8
```

```
function asyncMultiply(a, b, callback) {
  setTimeout(function() {
    callback(a * b);
  }, 500);
}

function asyncAdd(a, b, callback) {
  setTimeout(function() {
    callback(a + b);
  }, 500);
}

asyncAdd(2, 2, function(result) {
  asyncMultiply(result, 2, function(result) {
    console.log(result); // 8
  });
});
```

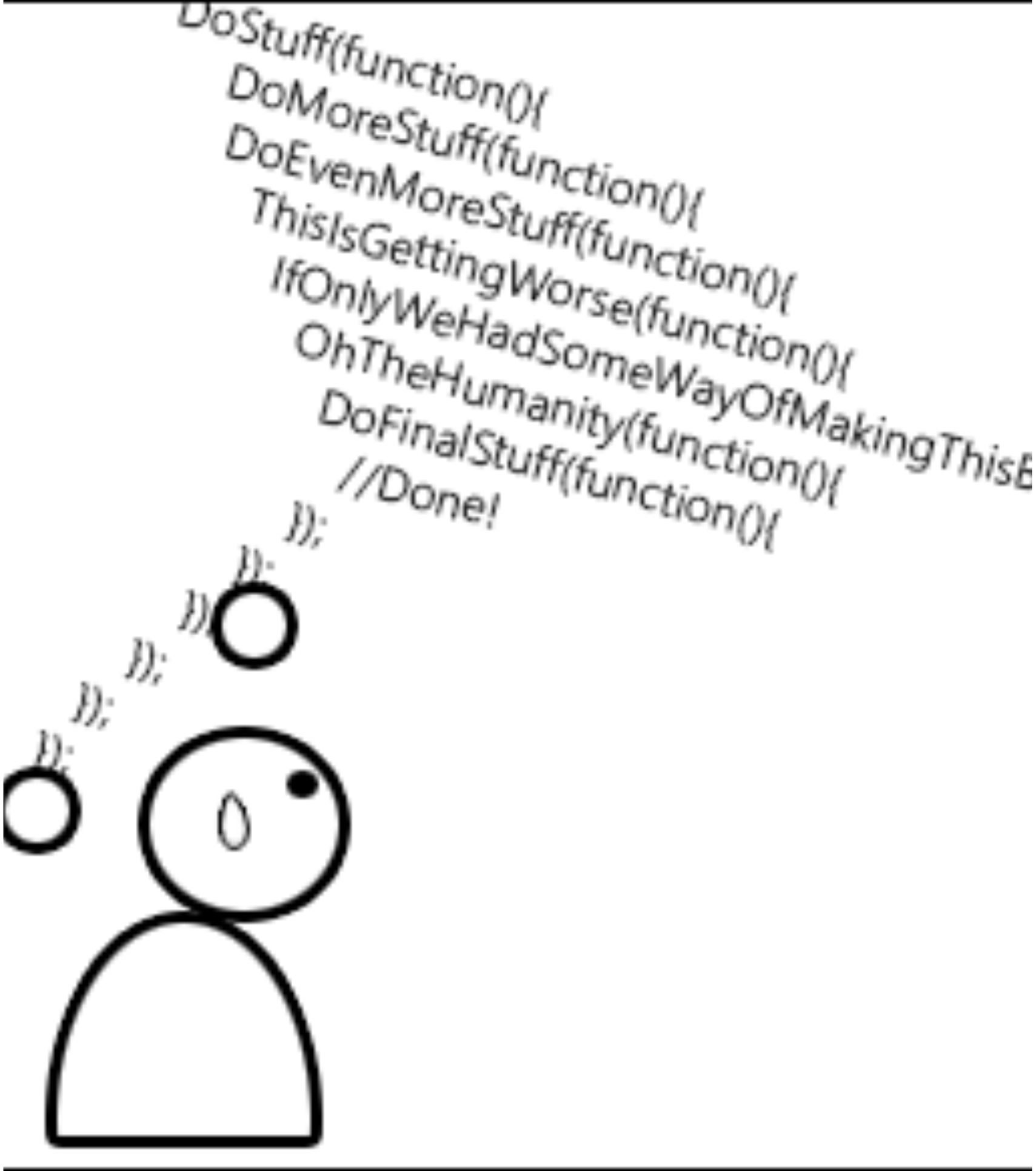
SYNC VS ASYNC EXCEPTIONS

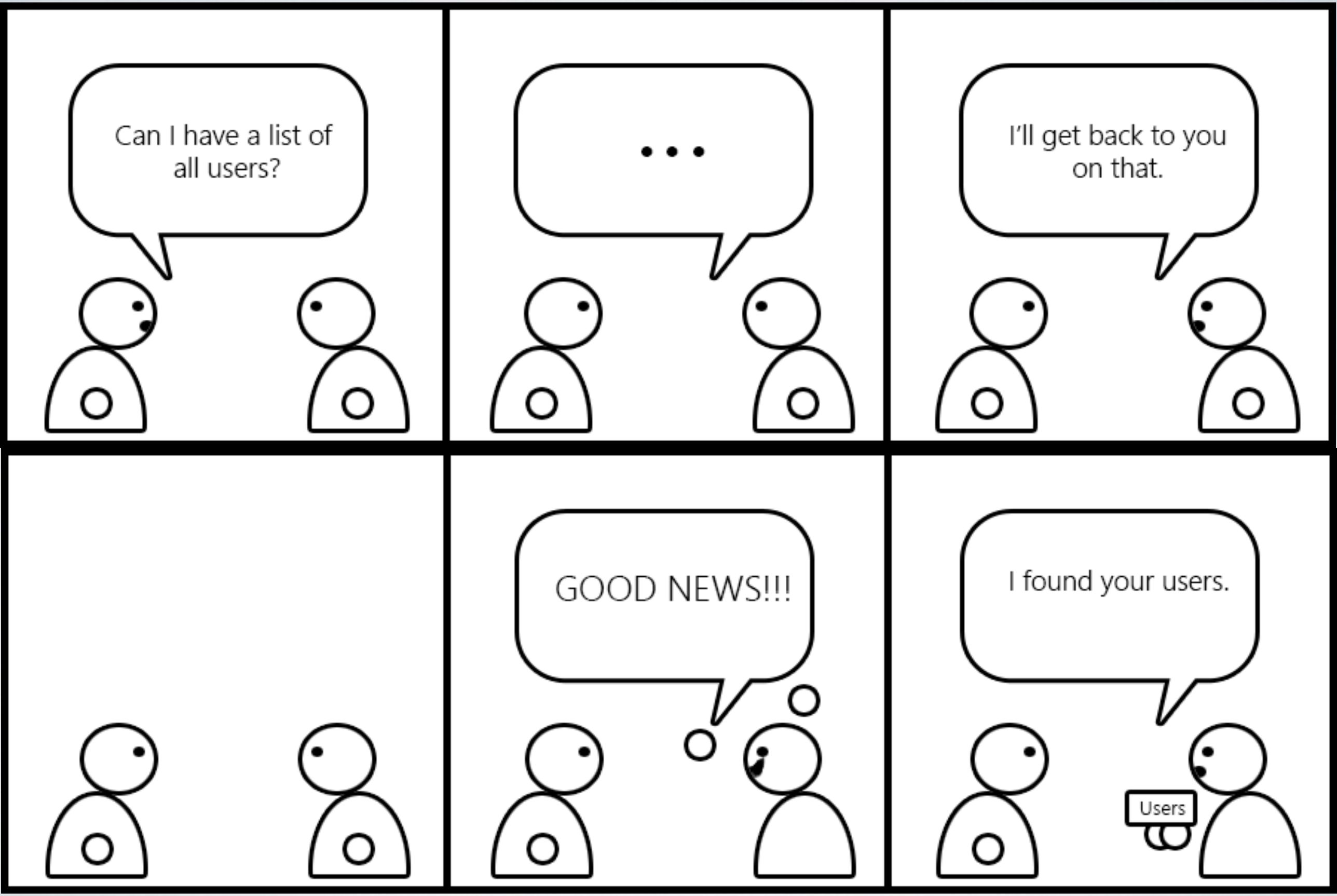
```
function add(a, b) {
  if (typeof a !== 'number') {
    throw new TypeError(
     'a is not a number');
  }
}

try {
  console.log( add('a', 2) );
} catch (e) {
  console.log(
  'you can only add numbers!');
} // you can only add numbers!
```

```
function asyncAdd(a, b, callback) {
  setTimeout(function() {
    if (typeof a !== 'number') {
      throw new TypeError(
        'a is not a number');
    }
    callback(a + b);
  }, 500);
}

asyncAdd('a', 2, function(result) {
  // never called
  console.log(result);
});
```

EXT.AJAX WITH CALLBACKS

```
Ext.Ajax.request({
  url: '/company/search/sencha',
  success: function (response) {
    Ext.Ajax.request({
      url: '/company/' + response.company.id + '/users',
      success: function (response2) {
        // use response.users
      },
      failure: function (response2) {
        // handle failure
      }
    });
  },
  failure: function (response) {
    // handle failure
  }
});
```


DoStuff(function(){
DoMoreStuff(function(){
DoEvenMoreStuff(function(){
ThisIsGettingWorse(function(){
IfOnlyWeHadSomeWayOfMakingThisB
OhTheHumanity(function(){
DoFinalStuff(function(){
//Done!
});
});
});
});
});
});


Can I have a list of all users?
. . .
I'll get back to you on that.
GOOD NEWS!!!
I found your users.
Users

EXT.AJAX WITH PROMISES

```
var promise = Ext.Ajax.request({
    url: '/company/search/sencha',
});

promise.then(function (company) {
   // use company
}).otherwise(function (reason) {
   // handle failure
});;
```

PROMISES AND RETURN VALUES

```
Ext.Ajax.request({
    url: '/company/search/sencha',
}).then(function (response) {
  return Ext.Ajax.request({
    url: '/company/' + response.company.id + '/users'
  });
}).then(function (response) {
  return response.users.map(function(user) {
    // do some transform
  });
}).then(function(users) {
  // use transformed users
}).otherwise(function (reason) {
  // handle failure
});;
```

PROMISES AND EXCEPTIONS

```
Ext.Ajax.request({
    url: '/company/search/sencha',
}).then(function (response) {
  if (somethingBad) {
    throw new Error('something bad!');
  }
  return Ext.Ajax.request({
    url: '/company/' + response.company.id + '/users'
  });
}).then(function (response) {
  // use response.users
}).otherwise(function (reason) {
  // handle failure
});;
```

CREATING A PROMISE

```
Ext.define('MyApp.service.AccountService', {
    ...

    load: function (accountId) {
        var deferred = Ext.create('Ext.Deferred');

        MyApp.model.AccountModel.load(accountId, {
            success: function (record, operation) {
                deferred.resolve(record);
            },
            failure: function (record, operation) {
                deferred.reject(operation.getError());
            },
            scope: this
        });

        return deferred.Ext.getPromise();
    }
});
```

ALWAYS()

```
accountService
    .load(accountId)
    .then(
        ...
)
.always(function () {
    // clean-up logic to execute
    // regardless of outcome
});
```

REGISTERING CALLBACKS VIA THEN()

```
accountService
    .load(accountId)
    .then(
        function (account) {
            // do something with the account
        },
        function (error) {
            // display or handle error
        },
        function (update) {
            // display progress
        },
        this
);
```

REGISTERING CALLBACKS VIA THEN() WITH NAMED PARAMS

```
accountService
    .load(accountId)
    .then({
        success: function (account) {
            // do something with the account
        },
        failure: function (error) {
            // display or handle error
        },
        progress: function (update) {
            // display progress
        },
        scope: this
});
```

CANCEL()

```
loadAccountPromise = accountService.load(accountId);
loadAccountPromise.otherwise(
    function (error) {
        // failure handler will be called with a
        // CancellationError
    }
);

loadAccountPromise.cancel();
```

PROPAGATION, RECOVERY, LOGGING

```
var accountPromise = accountService
    .load( accountId )
    .then({
        success: function (result) {
            if (result.error) {
                // detect and throw an error
                throw new Error(result.error.message);
            }
            return process(result);  // transform the result
        }
})
.otherwise(
    function (error) {
        return defaultValue;     // recover from error
    }
)
.log('Load Account:')
.done(); // ensures unhandled rejections rethrown as errors
```

TIMEOUT()

```
// Automatically reject after milliseconds
Ext.Deferred.timeout( promisesOrValues, milliseconds);
```

ALL(), ANY(), SOME(), MAP(), REDUCE()

```
// Aggregation
Ext.Deferred.all([
    obj.buyIt(),
    obj.useIt(),
    obj.breakIt(),
    obj.fixIt(),
    obj.trashIt(),
    obj.changeIt(),
    ...
]);

// Competitive Race
Ext.Deferred.any( promisesOrValues );
Ext.Deferred.some( promisesOrValues, howMany);

// Transformations
Ext.Deferred.map( promisesOrValues );
Ext.Deferred.reduce( promisesOrValues );
```

PIPELINE()

```
// Pipeline
Ext.Deferred.pipeline([
    accountService.load(),
    accountService.charge(20, ‘USD’),
    acccountService.save()
    ...
]);
```

EXT.PROMISE IS PROMISES/A+

- Implements the Promises/A+ Specification
- Passes the Promises/A+ Specification Compliance Test Suite

http://deftjs.org/

@DeftJS

Open Source

MIT License

Test Suite

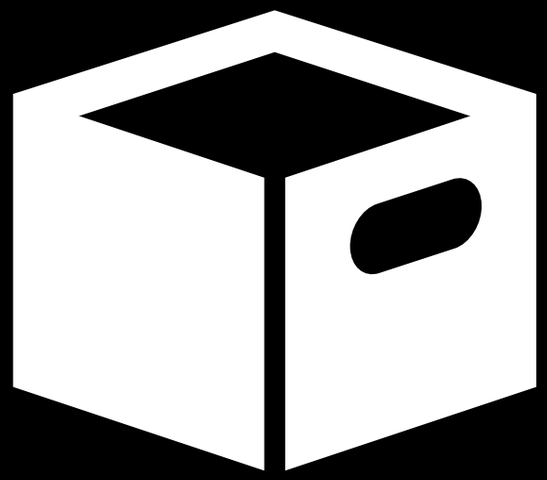
- Mocha + Chai + Sinon.JS
- Karma Test Runner
- Travis CI
  - Over 1,000 unit tests
  - ~20 supported versions of Sencha Touch and Ext JS

Supported Versions

- Ext JS 4.0.7+, 5, 6
- Sencha Touch 2.0.1+

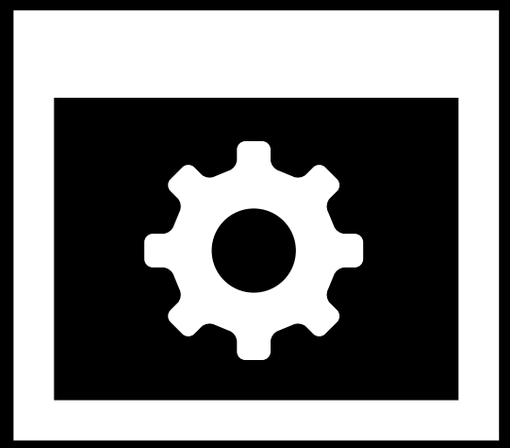
Core Features

Ext JS 4, 5, 6+



IoC Container

Ext JS 4



View Controllers

Ext JS 4, 5

Promises

Road Map

- Immutable Data ala Mori.js / Immutable.js ?
- Functional Reactive Programming (FRP) ?
- Your ideas ?
- More Documentation and Examples

PROMISES Q&A ?

```
learnPromises.then(function(knowledge) {
  // go forth and build awesome
  // applications with Sencha Ext JS 6
}).otherwise(function(question) {
  // ask questions
}).always(function(feedback) {
  // give feedback @superstructor, sencha
  // forums etc
});
```