



Some new features of async test in angular

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Agenda

- Proxy/Async/fakeAsync
- FakeAsync
 - Date.now()
 - jasmine.clock()
 - Rxjs.scheduler (delay/asap/async)
- Async
 - Pending Non Resolved Promiseを待つ
 - async beforeEach + async itをサポート(Bug改修)
- 全体
 - Jasmine 2.9 & 3.x サポート
 - Mocha 5.x サポート
- その他



Describe/beforeEach/it -> ProxyZone

```
import 'zone.js/dist/zone-testing'; // angular-cli の場合、すでにImport済み
```

```
describe('test', () => { // ProxyZone(SyncTestZone)
```

```
  beforeEach(() => {}); // ProxyZone
```

```
  it(() => {}); // ProxyZone
```

```
});
```

```
});
```



async

```
it('(async)', async(() => { // ProxyZone(AsyncTestZone)
  asyncOpertion();

  fixture.whenStable().then(() => {
    // all async tasks finished
    expect(quoteEl.textContent).toBe(testQuote);
  });
}));
```



fakeAsync: setTimeout/Interval/requestAnimationFrame/Promise

```
it('fakeAsync', fakeAsync(() => {  
  // ProxyZone(FakeAsyncZone)  
  setTimeout(() => {finish = true;}, 1000);  
  tick(1000);  
  expect(finish).toBe(true);  
}));
```



fakeAsync: Date.now()

```
it('should show quote after getQuote (fakeAsync)', fakeAsync(() => {  
  const start = Date.now();  
  tick(100);  
  const end = Date.now();  
  expect(end - start).toBe(100);  
}));
```



FakeAsync: jasmine.clock() -> auto fakeAsync

```
beforeEach(() => {
  jasmine.clock().install();
});
afterEach(() => {
  jasmine.clock().uninstall();
});
it('should get date diff correctly', () => { // we don't need fakeAsync here.
  // automatically run into fake async zone, because jasmine.clock() is installed.
  const start = Date.now();
  jasmine.clock().tick(100);
  const end = Date.now();
  expect(end - start).toBe(100);
});
```




FakeAsync: rxjs scheduler(async/delay/asap)

```
it('should show quote after getQuote (fakeAsync)', fakeAsync(() => {  
  observable.delay(1000).subscribe(v => {  
    result = v;  
  });  
  expect(result).toBeNull();  
  testZoneSpec.tick(1000);  
  expect(result).toBe('hello');  
}));
```



Async: Pending non resolved promise.then

```
it('should fail', async(() => {  
  const promise = new Promise((res, rej) => {  
    jsonp(url, res); // where jsonp is not zone aware  
  });  
  promise.then(() => {  
    expect(false).toBe(true);  
  });  
}));
```



Async:async beforeEach + async it

```
beforeEach(async(() => {  
  TestBed.configureTestingModule({  
    declarations: [  
      AppComponent  
    ],  
  }).compileComponents();  
}));  
it('simple timeout', async(() => {  
  setTimeout(() => {  
    expect(true).toBe(true);  
  }, 200);  
}));
```



Jasmine 2.9 ~ 3.x, mocha 5.x support

今のバージョンでエラーになる



fakeAsync: support more async operations

```
// tell fakeAsync should support HTMLCanvasElement.toBlob
window['__zone_symbol__FakeAsyncTestMacroTask'] = [{
  source: 'HTMLCanvasElement.toBlob',
  callbackArgs: [{size: 100}] // the test blob data which will be passed back to
  callback
}];
```



Zone.js 0.8.21(Release date unknown..)



Don't call done in async/fakeAsync

```
it('should show quote after getQuote (async)', async((done: DoneFn) => {  
  asyncOperation(() => {  
    doneFn(); // doneFn is undefined  
  
  });  
}));
```



Don't return promise in async

```
it('should show quote after getQuote (async)', async((done: DoneFn) => {  
  return new Promise((res, rej) => {  
  
    asyncOperation(res);  
  
  });  
}));
```




Sync operation in async

```
it('sync', async() => {  
  const a = 1 + 1;  
}));
```

```
it('sync', async() => {  
  btn.addEventListener('click', listener);  
}));
```



Next...

1. Rename async -> ?
2. async should wait for pending observable.
3. fixture.detectChanges できるだけ自動実行?
4. fakeAsync support MockBackend?
5. Better timeout message

Error: Timeout - Async callback was not invoked within timeout specified by jasmine.DEFAULT_TIMEOUT_INTERVAL.

--Pendng async tasks are: [type: macroTask, source: setTimeout, args: {handleId:3,isPeriodic:false,delay:10000,args:[]}]