ANGULAR
ARCHITECTS
INSIDE KNOWLEDGE

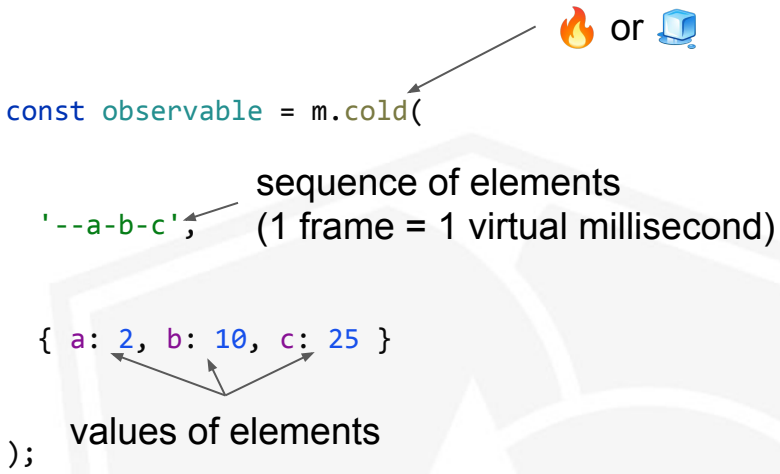
Angular Testing

2 - RxJs Marbles

RxJS Marbles

- Special Notation
- Primarily made for internal usage
- Use Cases:
  - Complex Operator and multiple values
  - Custom Operators
- No support for asynchronity outside of operators
  - Promises
  - setTimeout, setInterval

Marble Diagram



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Testing Structure

```
import { marbles } from 'rxjs-marbles/jest';
import { map } from 'rxjs/operators';

test(
 'default check',
 marbles((m) => {
   const source$ = m.cold('--a-b-c', { a: 2, b: 10, c: 25 });

   const destination$ = source$.pipe(map((n) => n * 2));

   m.expect(destination$).toBeObservable(
     '--x-y-z', { x: 4, y: 20, z: 50, });
 })
);
```

Advanced Features

- Synchronous Events
  - `'abcd(e|)'`

gets element and completes

- Setting Time
  - `m.cold('d 2ms p 2ms h')`

time between elements

Advanced Features - Flushing

```
let searchCounter = 0;

const source = m.cold('abcdef', {...});

const destination = source.pipe(

 tap(() => searchCounter++),

);


m.expect(destination).toBeObservable('abcdef', {...});

m.flush();


expect(searchCounter).toBe(6);
```

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Testing NgRx

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Reducer 1/2

```
export const holidaysReducer = createReducer<HolidaysState>(
  initialState,
  on(holidaysActions.findHolidaysSuccess, (state, { holidays }) => ({
    ...state,
    holidays
  }))
);
```

Reducer 2/2

```
it('should add the holidays on findHolidaySuccess', () => {
  const holidays = [
    { id: 1, title: 'Pyramids' },
    { id: 2, title: 'Tower Bridge' }
  ] as Holiday[];

  const state = holidaysReducer(
    { holidays: [] },
    holidaysActions.findHolidaysSuccess({ holidays })
  );

  expect(state).toEqual({ holidays });
});
```

Selectors 1/2

```
const stateSelector = createFeatureSelector<HolidaysState>(holidaysFeatureKey);


export const fromHolidays = {
  get: createSelector(stateSelector, ({ holidays }) => holidays)
};
```

Selectors 2/2

```
it('should select the holidays', () => {
  const state: HolidaysState = {
    holidays: [
      { id: 1, title: 'Pyramids' },
      { id: 2, title: 'Tower Bridge' }
    ] as Holiday[]
  };
  expect(fromHolidays.get.projector(state)).toEqual([
    { id: 1, title: 'Pyramids' },
    { id: 2, title: 'Tower Bridge' }
  ]);
});
```

Effects 1/2

```
export class HolidaysEffects {
  find$ = createEffect(() =>
    this.actions$.pipe(
      ofType(holidaysActions.findHolidays),
      switchMap(() =>
        this.httpClient.get<{ holidays: Holiday[] }>(
          'https://eternal-app.s3.eu-central-1.amazonaws.com/holidays.json'
        )
      ),
      map(({ holidays }) => holidaysActions.findHolidaysSuccess({ holidays }))
    )
  );
  constructor(private actions$: Actions, private httpClient: HttpClient) {}
}
```

Effects 2/2

```
it(
  'should test find$',
  marbles((m) => {
    const httpClient = {
      get: () => m.cold('---a', { a: { holidays: [{ id: 1 }] } })
    };
    const actions$ = m.cold('a', { a: holidaysActions.findHolidays() });

    const effect = new HolidaysEffects(actions$, (httpClient as unknown) as HttpClient);

    m.expect(effect.find$).toBeObservable('---a', {
      a: holidaysActions.findHolidaysSuccess({ holidays: [({ id: 1 } as unknown) as Holiday] })
    });
  })
);
```

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Lab Time