

## Assignment

Create an application that allows a user to sliceup a video (sample video: [http://grocchtdreis.de/fuerjsfiddle/video/sintel\\_trailer480.mp4](http://grocchtdreis.de/fuerjsfiddle/video/sintel_trailer480.mp4)) into clips.

As part of this application, I used AngularJS to facilitate development and to help complete the project:

### Mandatory Features

- An HTML5 video player that utilizes media fragments
- A list of clips to be played in the video player
- The first item in the list should be the full video
- An interface to add new clips to the list by specifying a name, start time, and end time
- The ability to delete clips from the list (excluding the full video item)
- The ability to edit existing clips in the list
- The ability to play clips in the video player

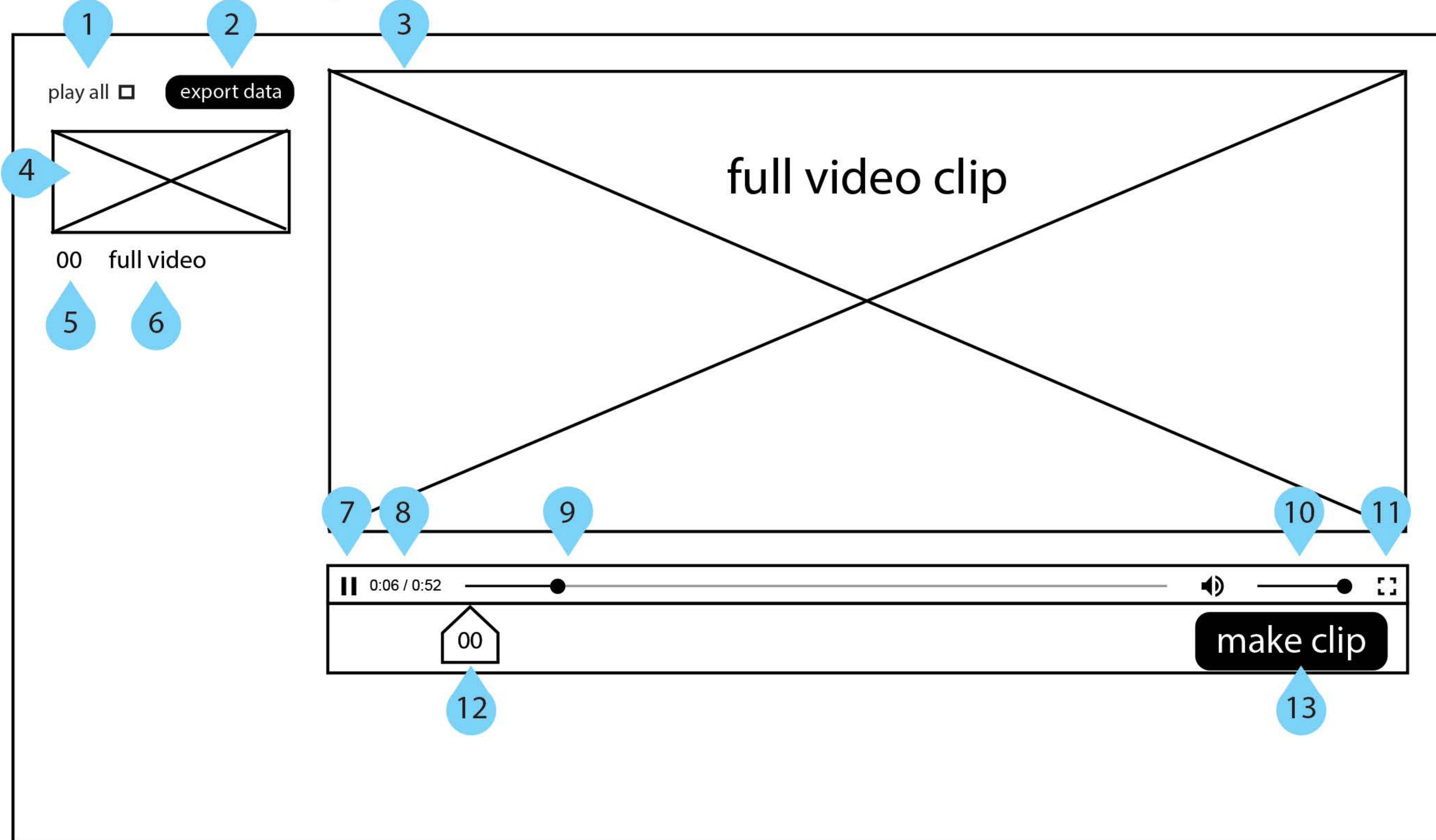
### Bonus (Completed)

- The ability to automatically jump to the next clip after it finishes, with a 3 second waiting period and appropriate loading animation.
- The ability to 'save' clips for persistent use.
- The ability to add arbitrary 'tags' to clips so that they can be filtered by the tag name.
- Markers on the video player timeline that denote where a clip starts.
- The ability to reuse the the player and playlist on another page without the editing capabilities.

**Git repo:** <https://github.com/krishnaramnath/video-clipper>

# Wire-frames

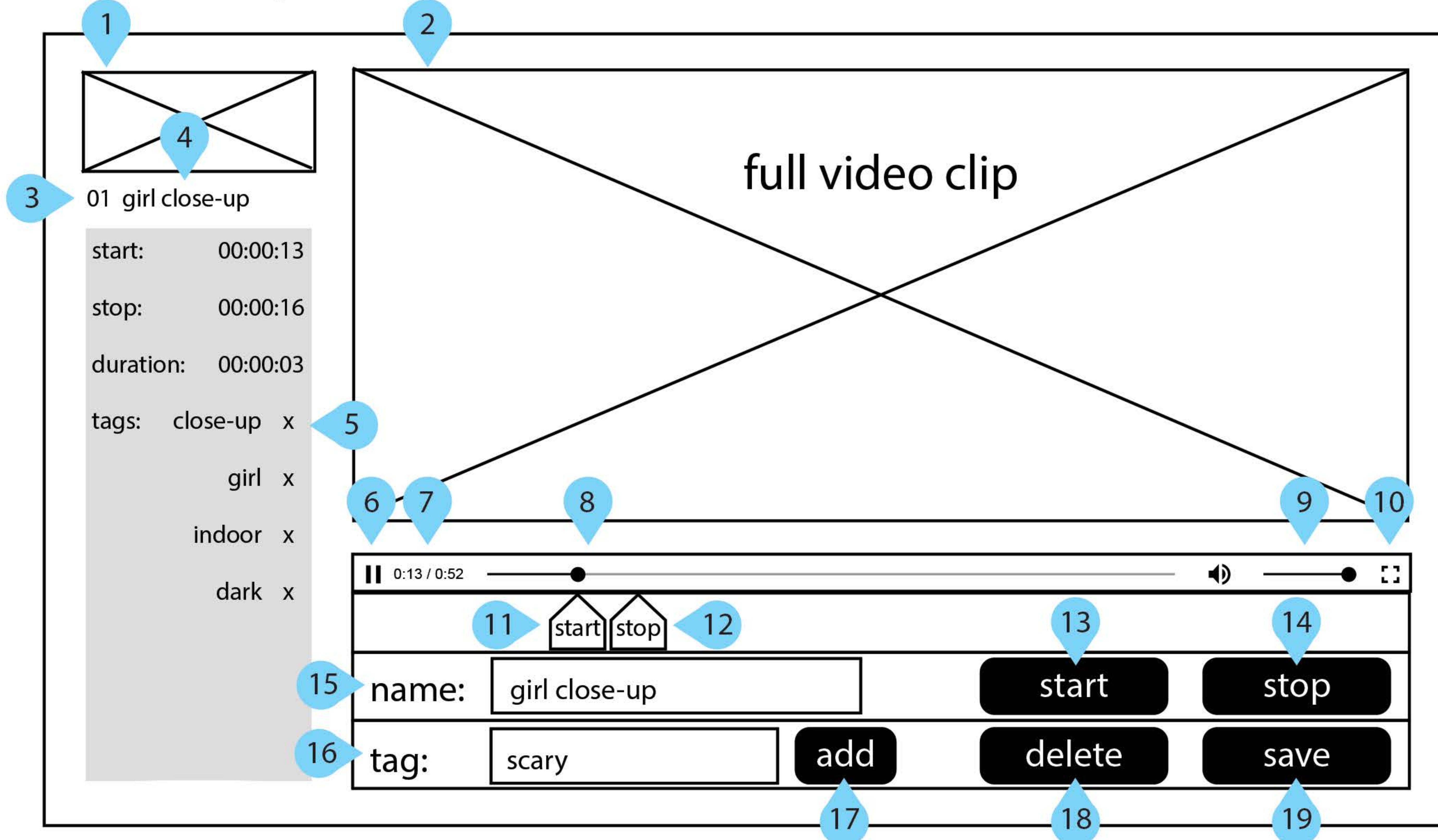
## initial state (no clips created)



- Use video player controls (7,9) to play full video clip.
- CLICK/TAP the 'make clip' button (13) to initiate the 'make/edit clip' state.
- CLICK/TAP 'play all' toggle (1) to have video clips play in sequence (hidden if only full video clip is shown)

- 1 play all toggle
- 2 export data button
- 3 video screen
- 4 full video thumbnail image
- 5 video clip number
- 6 video clip title
- 7 play/pause button
- 8 current time/total length
- 9 progress bar
- 10 volume slider
- 11 full screen button
- 10 clip start marker - number indicates clip
- 12 make clip button
  - CLICK/TAP here initiates the make/edit clip state

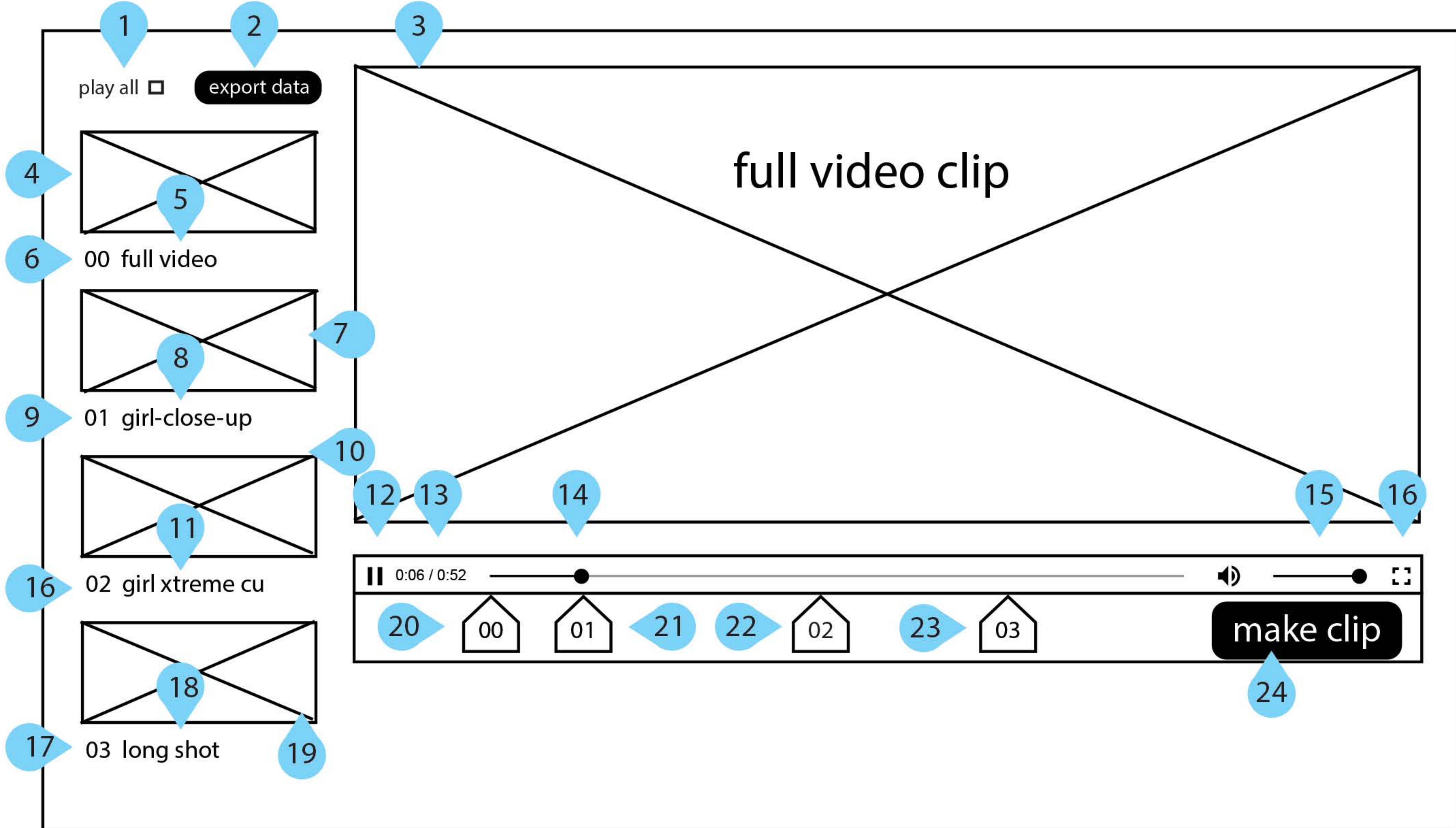
## make/edit clip state



- Use video play/pause (6) button to play full video to the start point of your video clip.
- CLICK/TAP the 'start' button (13) to mark and store the start point of your video clip.
- Use video play/pause (6,8) controls to play full video to the end point of your video clip.
- CLICK/ TAP the 'stop' button (14) to mark and store the start point of your video clip.
- Type a name for the clip in the 'name' field (15).
- Type a tag in the 'add tags' field (16) and click the 'add' button (17) to add a tag;
- CLICK/TAP the 'x'(5) next to a tag in the details block to remove the tag;
- CLICK/ TAP the 'save' button (19) to save the clip and return to the 'player state'.
- To delete the current clip and return to the 'player state' CLICK/TAP the 'delete' button (18).

- 1 thumbnail image for this clip (from start time)
- 2 video screen
- 3 video clip number
- 4 video clip title
- 5 CLICK/TAP 'x' to remove tag
- 6 play/pause button
- 7 current time/total length
- 8 progress bar
- 9 volume slider
- 10 full screen button
- 11 clip start marker
- 12 clip stop marker
- 13 'start' button; CLICK/TAP to set clip start time
- 14 'stop' button; CLICK/TAP to set clip stop time
- 15 name input field
- 16 tag input field
- 17 "add tag" button
- 18 'delete' clip button
- 19 'save' clip button

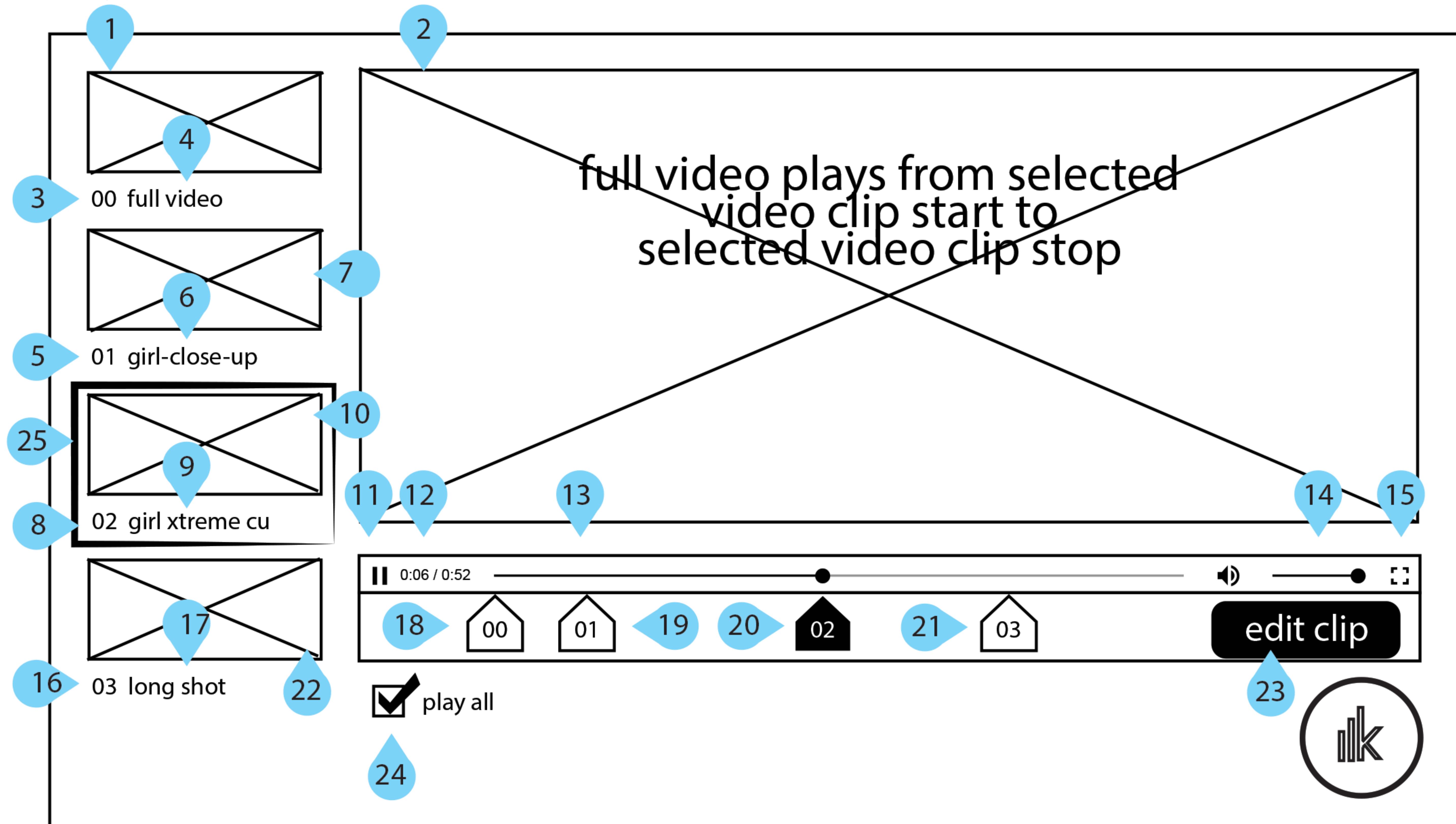
## player state (several clips created, none selected)



- Use video play/pause (12) button to play full video.
- CLICK/TAP the 'make clip' button (24) to make a new video clip and initiate the 'make/edit clip' state
- CLICK/TAP the 'play all' (1) checkbox to toggle play all clips in sequence setting on/off

- 1 play all toggle
- 2 export data button
- 3 video screen
- 4,7,10,19 thumbnail images the clips
- 6,9,16,17 video clip numbers
- 5,8,11,18 video clip titles
- 12 play/pause button
- 13 current time/total length
- 14 progress bar
- 15 volume slider
- 16 full screen button
- 20,21,22,23 clip start markers
- 24 'make clip' button; CLICK/TAP to make a new video clip

## player state (several clips created, one selected)



- CLICK/TAP thumbnail image (1,7,10,22) of video clip you wish to play
- selected video clip indicator (25) will display
- full video will jump to and play from 'start' point of selected video clip
- CLICK/TAP the 'edit clip' button (23) to edit the details of this video clip and initiate the 'make/edit clip' state
- CLICK/TAP the 'play all' checkbox (24) to toggle play all clips in sequence setting on/off

1,7,10,22 thumbnail images the clips

2 video screen

3,5,8,16 video clip numbers

4,6,9,17 video clip titles

11 play/pause button

12 current time/total length

13 progress bar

14 volume slider

15 full screen button

18,19,20,21 clip start markers

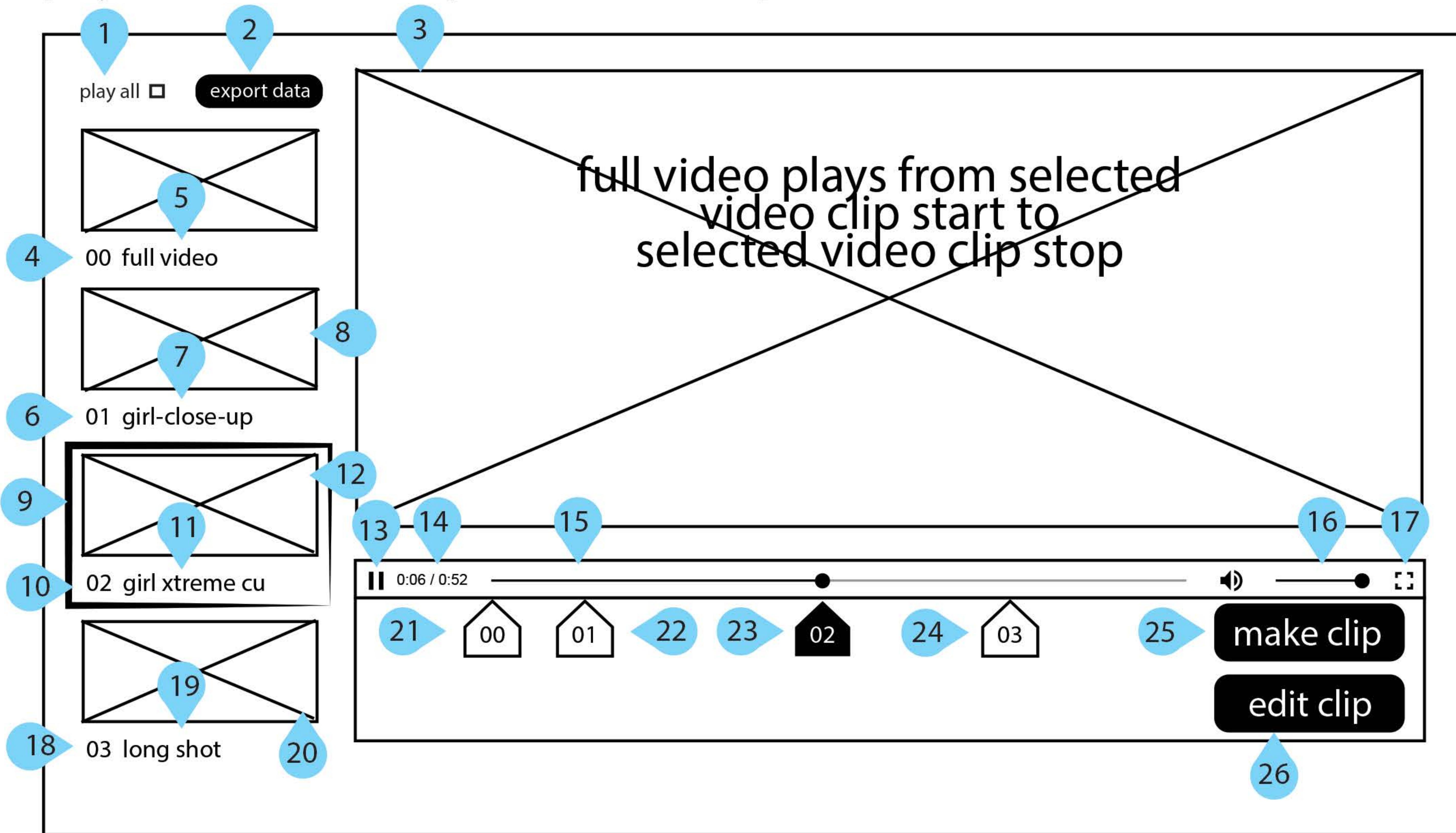
20 marker of selected video clip is in 'selected' state

23 'make clip' button; CLICK/TAP to make a new video clip

24 'play all' checkbox; CLICK /TAP to toggle play all clips in sequence setting on/off

25 selected video clip indicator

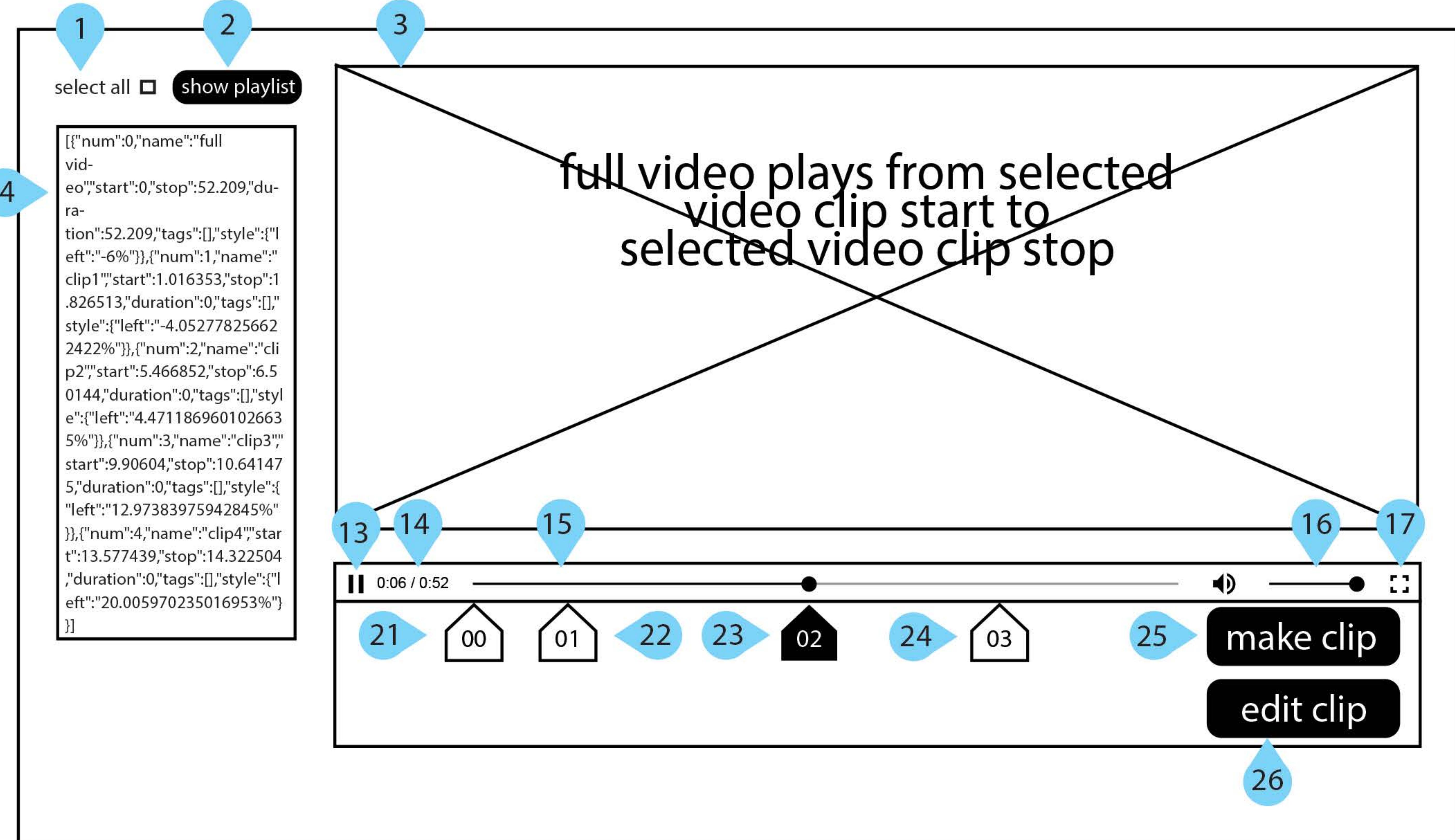
## player state (several clips created, one clip selected)



- CLICK/TAP thumbnail image (1,7,10,22) of video clip you wish to play
- selected video clip indicator (25) will display
- full video will jump to and play from 'start' point of selected video clip
- CLICK/TAP the 'edit clip' button (23) to edit the details of this video clip and initiate the 'make/edit clip' state
- CLICK/TAP the 'play all' checkbox (24) to toggle play all clips in sequence setting on/off

- 1 play all toggle
- 2 export data button
- 3 video screen
- 8,12,20 thumbnail images the clips
- 4,6,10,18 video clip numbers
- 5,7,11,19 video clip titles
- 13 play/pause button
- 14 current time/total length
- 15 progress bar
- 16 volume slider
- 17 full screen button
- 21,22,23,24 clip start markers
- 23 marker of selected video clip is in 'selected' state
- 25 'make clip' button; CLICK/TAP to make a new video clip
- 26 'edit clip' button; CLICK/TAP to edit selected video clip
- 9 selected video clip indicator

## player state (several clips created, export data clicked)




- CLICK/TAP the 'select all' checkbox (1) to select the clip data so you can copy and paste.
- CLICK/TAP the 'show playlist' button (2) to show the current video playlist.
- CLICK/TAP the 'make clip' button (25) to initiate the 'make/edit clip' state.
- CLICK/TAP the 'edit clip' button (26) to edit the details of this video clip and initiate the 'make/edit clip' state

- 1 select all toggle
- 2 show playlist button
- 3 video screen
- 4 video clip data
- 13 play/pause button
- 14 current time/total length
- 15 progress bar
- 16 volume slider
- 17 full screen button
- 21,22,23,24 clip start markers
- 23 marker of selected video clip is in 'selected' state
- 25 'make clip' button; CLICK/TAP to make a new video clip
- 26 'edit clip' button; CLICK/TAP to edit selected video clip

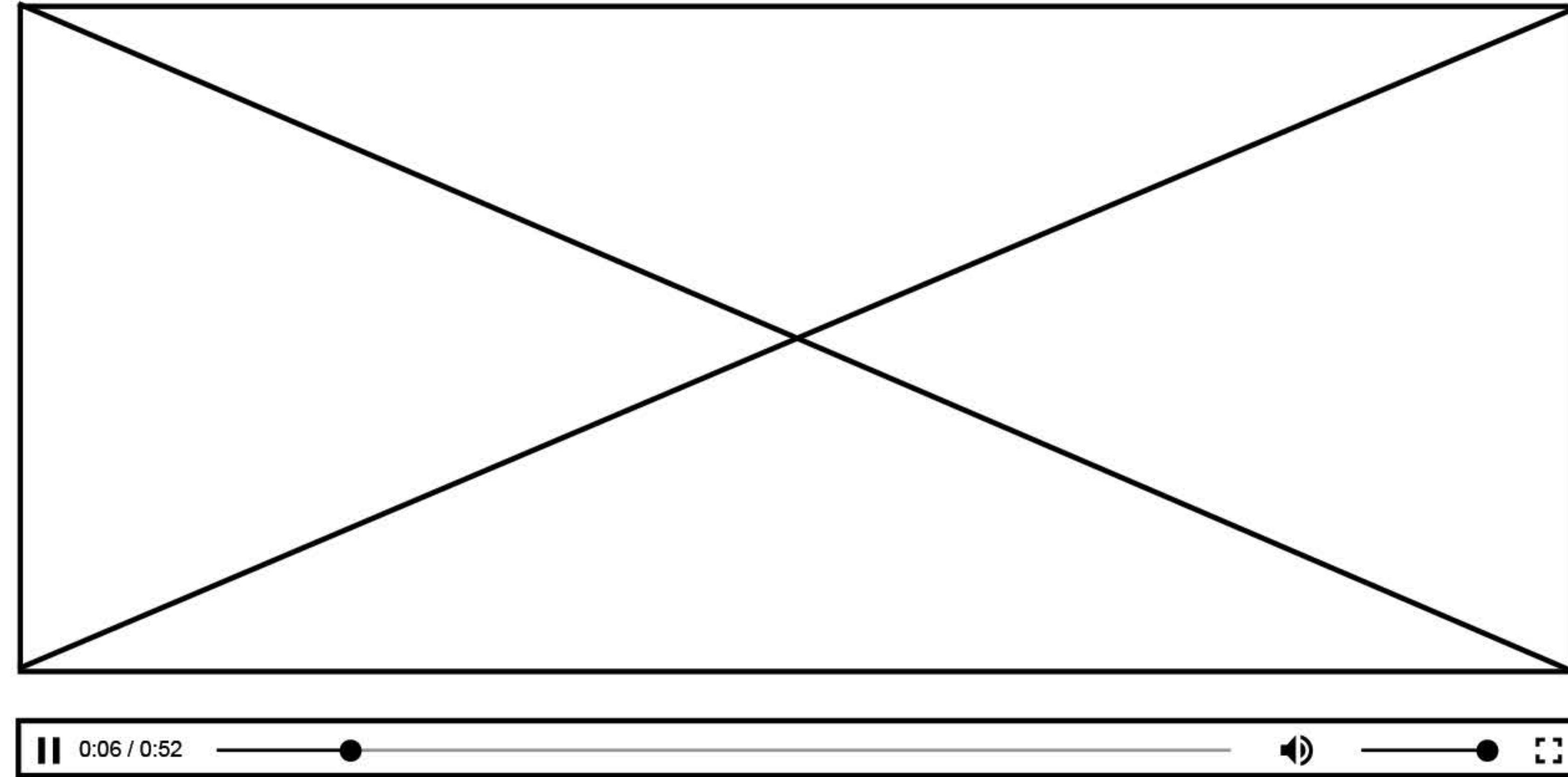
# Software Architecture

## user flow

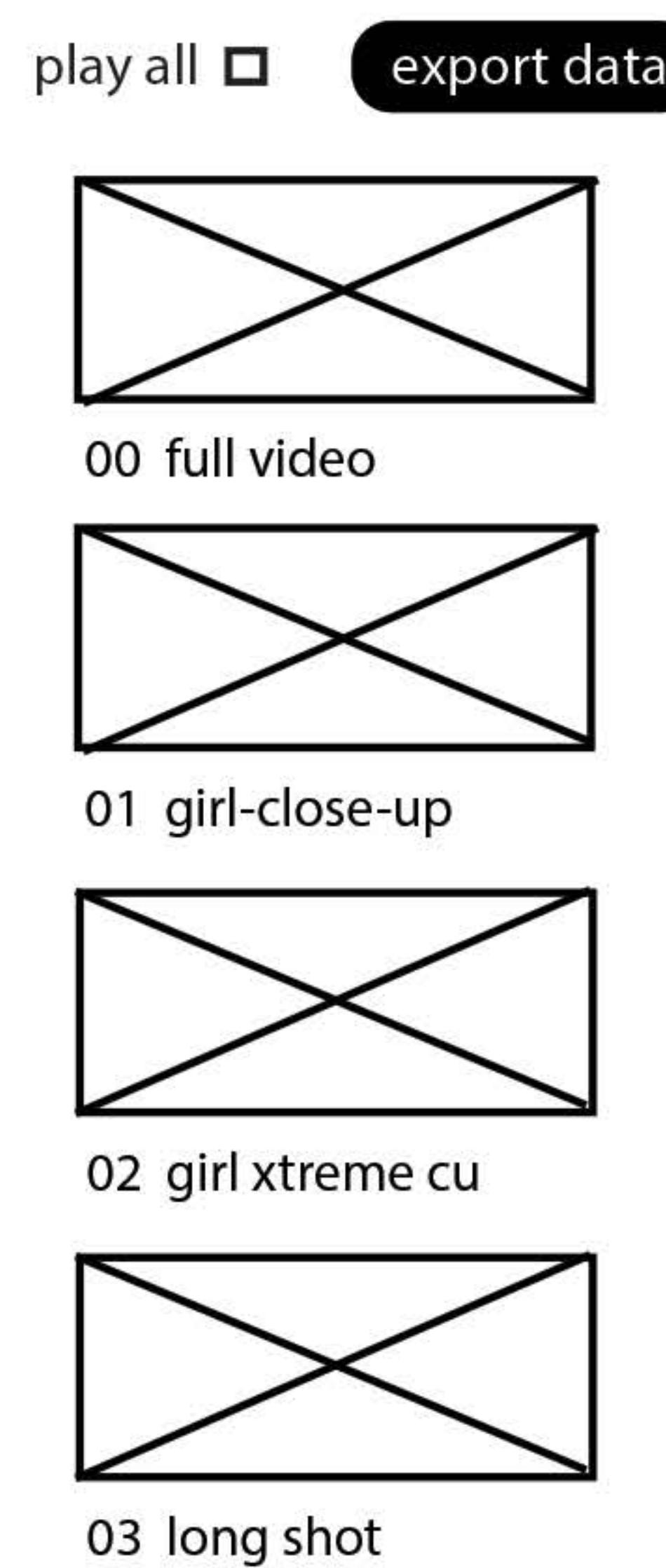


## Angular Views/Directives

<video-player></video-player>  
video-player.html



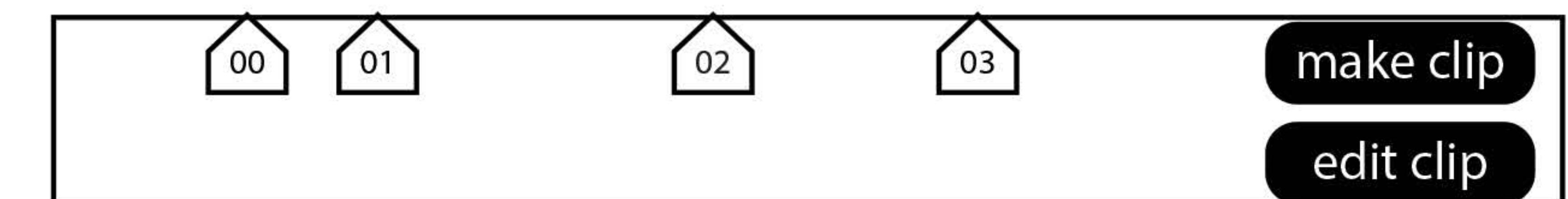
<video-thumbs></video-thumbs>  
video-thumbs.html



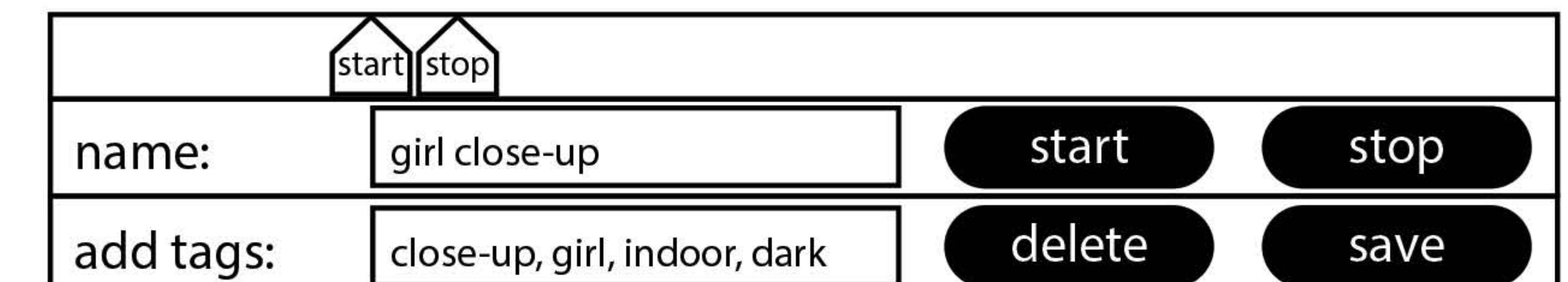
<video-clipinfo></video-clipinfo>  
video-clipinfo.html



<video-markers></video-markers>  
video-markers.html



<video-makeclip></video-makeclip>  
video-makeclip.html



## data model

```
{  
  "srcfile": "/media/sintel_trailer-480.mp4",  
  "videoMarkers": {  
    "buttoncopy": [  
      "make clip",  
      "edit clip"  
    ]  
  },  
  "videoMakeclip": {  
    "buttoncopy": [  
      "start",  
      "stop",  
      "add",  
      "delete",  
      "save"  
    ],  
    "markers": [  
      {  
        "num": 0,  
        "label": "stop",  
        "style": {"left": '-6%'}  
      },  
      {  
        "num": 1,  
        "label": "start",  
        "style": {"left": '-6%'}  
      }  
    ],  
    "videoThumbs": {  
      "buttoncopy": [  
        "play all",  
        "select all",  
        "export data",  
        "show playlist"  
      ]  
    },  
    "clips": [  
      {  
        "num": 0,  
        "name": "full video",  
        "start": 0,  
        "stop": 0,  
        "duration": 0,  
        "tags": [],  
        "style": {"left": '-6%'}  
      }  
    ]  
  }  
}
```

## main app controller

```
ClipperController  
 ['$scope','$sce','$window',videoInfo, function($scope,$sce,$window,videoInfo){  
   var clipper = this;  
   clipper.srcfile = $sce.trustAsResourceUrl(videoInfo.srcfile);  
   clipper.isMakeclipOpen = false;  
   clipper.clips = videoInfo.clips;  
  
   clipper.tempClip = { ... };  
  
   clipper.isActive = function(num) { ... };  
  
   clipper.setActive = function(num) { .. };  
  
   clipper.isLoading = function() { ... }  
  
   clipper.reset = function () { ... };  
  
   clipper.delete = function () { ... };  
  
   clipper.errorCheck = function() { ... };  
  
   clipper.removeTag = function(num) { ... };  
  
   clipper.scrollToTop = function() { ... };  
  
   clipper.setState = function(state) { ... };  
 }]);
```

## AngularJS directives

### videoMarkers

```
return {  
  restrict: 'E',  
  templateUrl: "video-markers.html",  
  controller:  
    ['$scope', '$rootScope', 'videoInfo', function(videoInfo) {  
      var markers = this;  
      markers.buttoncopy = videoInfo.videoMarkers.buttoncopy;  
      markers.clips = videoInfo.clips;  
      $scope.$on('initialload', markers.positionMarkers);  
  
      markers.positionMarkers = function() { ... }  
    }],  
    controllerAs: "markers"  
  };  
};
```

### videoClipinfo

```
return {  
  restrict: 'E',  
  templateUrl: "video-clipinfo.html"  
};  
});
```

### videoMakeclip

```
return {  
  restrict: 'E',  
  templateUrl: "video-makeclip.html",  
  controller:  
    ['$scope', '$rootScope', 'videoInfo', function($scope, $rootScope, videoInfo) {  
      var makeclip = this;  
      makeclip.mrkrCtrCorrect = 6;  
      makeclip.buttoncopy = videoInfo.videoMakeclip.buttoncopy;  
      makeclip.markers = videoInfo.videoMakeclip.markers;  
      makeclip.fullvideo = document.getElementById('fullvideo');  
      makeclip.error = false;  
  
      makeclip.getTime = function() { ... };  
  
      makeclip.updateMarkerPos = function(num, pos) { ... };  
  
      makeclip.saveClip = function(clip) { ... };  
  
      makeclip.cleanup = function() { ... };  
  
      makeclip.getStyle = function() { ... };  
  
      makeclip.resetMarkers = function() { ... };  
    }],  
    controllerAs: "makeclip"  
  };  
};
```

### videoThumbs

```
return {  
  restrict: 'E',  
  templateUrl: "video-thumbs.html",  
  controller:  
    ['$scope', '$rootScope', 'videoInfo', function($scope, $rootScope, videoInfo) {  
      var thumbs = this;  
      thumbs.clips = videoInfo.clips;  
      thumbs.buttoncopy = videoInfo.videoThumbs.buttoncopy;  
      thumbs.showData = false;  
    }],  
    controllerAs: "thumbs"  
  };  
};
```

## AngularJS directives (continued...)

### **videoPlayer**

```
return {
  restrict: 'E',
  templateUrl: "video-player.html",
  controller: ['$scope','$sce','videoInfo', function($scope,$sce,videoInfo) {
    player = this;
    player.srcfile = $sce.trustAsResourceUrl(videoInfo.srcfile);
    player.firstTime = true;
    player.fullvideo = document.getElementById('fullvideo');
    player.loading = true;

    player.fullvideo.addEventListener('loadedmetadata', function (e) { ... }.bind(player), false);

    player.fullvideo.addEventListener('timeupdate', function (e) { ... }.bind(player), false);

    player.fullvideo.addEventListener('ended', function (e) { ... }.bind(player), false);

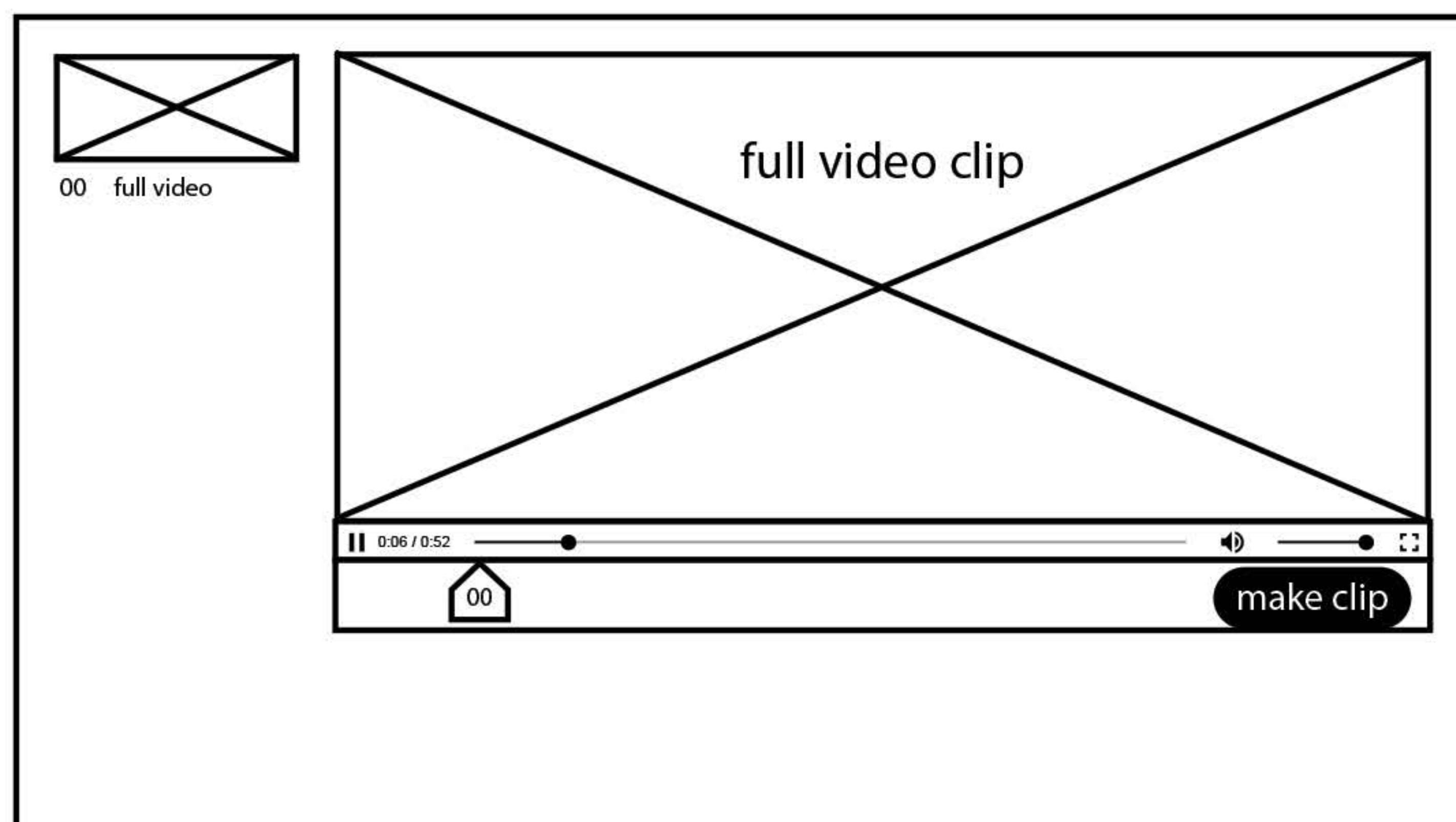
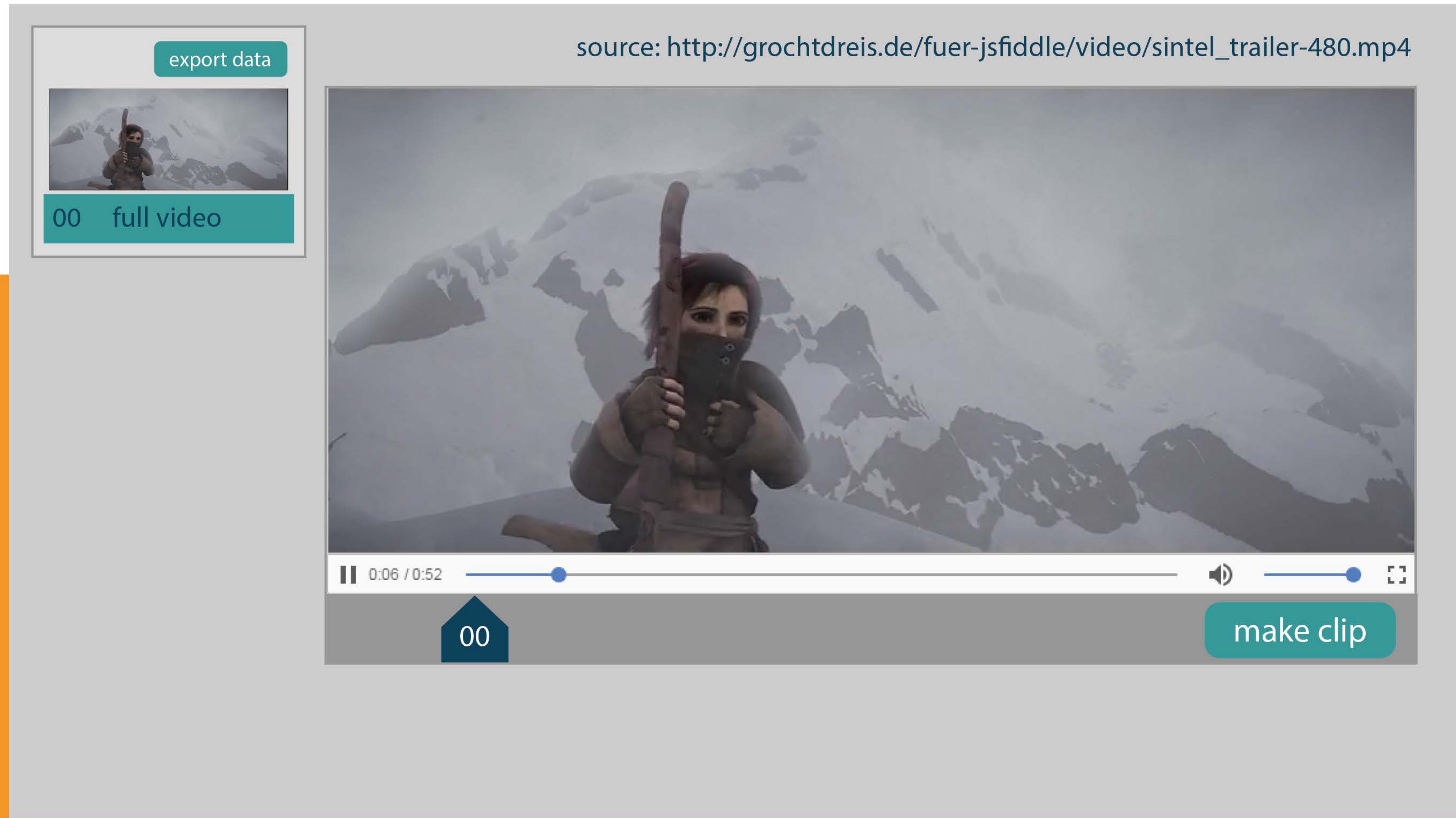
    player.setActive = function(num) { ... };

    player.setActive(0);
    $scope.$on('setActive', function(e,num) {player.setActive(num)});

  }],
  controllerAs: "player"
};  
});
```

# Design

## initial state (no clips created)



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## make/edit clip state

source: [http://grocchtdreis.de/fuer-jsfiddle/video/sintel\\_trailer-480.mp4](http://grocchtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4)

01 girl close-up

start: 00:00:13

stop: 00:00:16

duration: 00:00:03

tags:

- close-up ✘
- girl ✘
- indoor ✘
- dark ✘

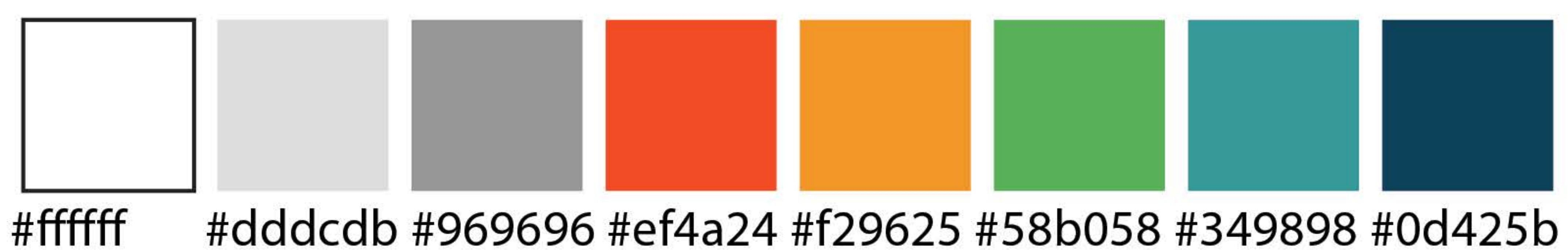
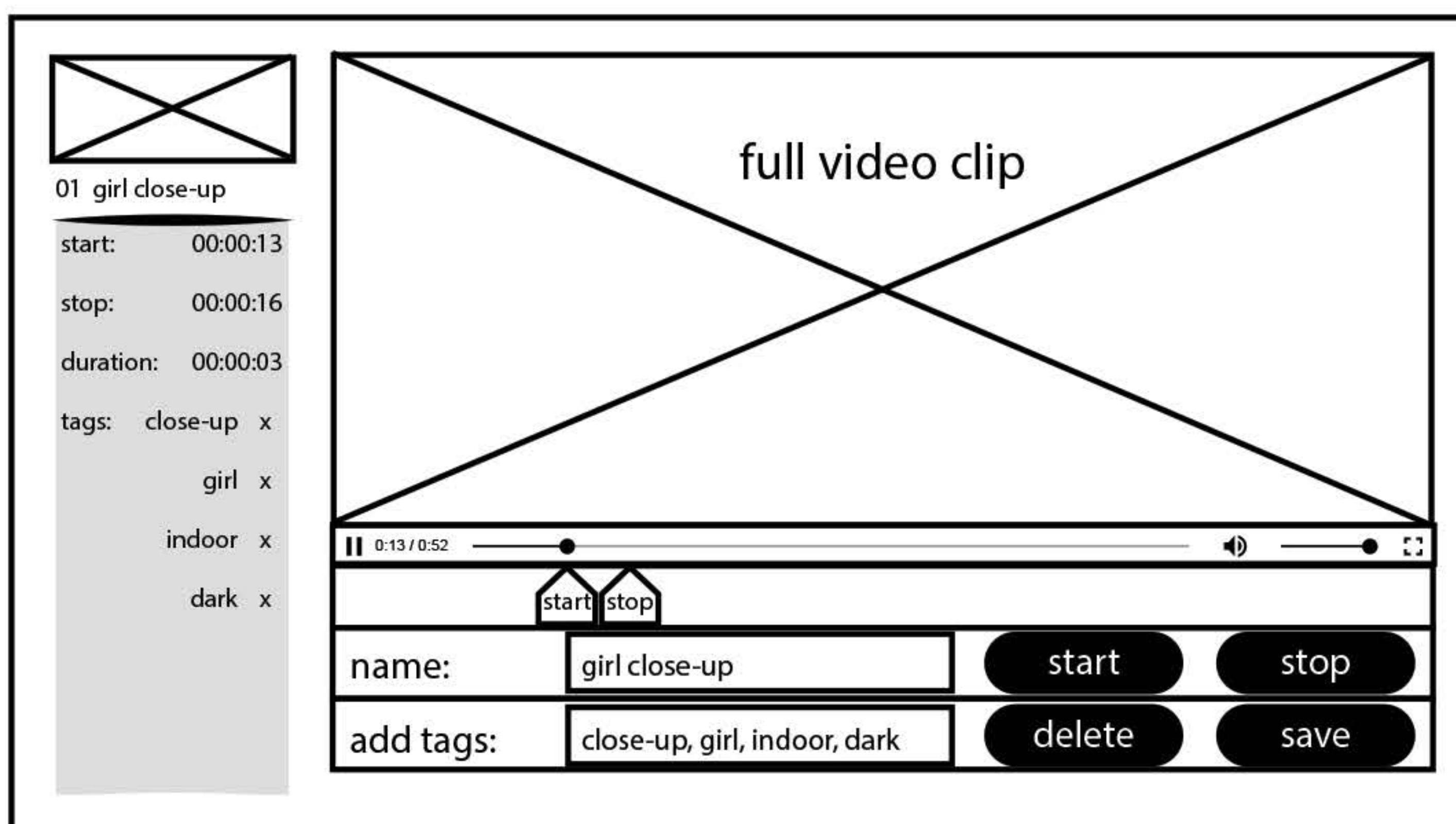
name: girl close-up

add tags: light

start stop

start stop

add delete save



Font Arial 16pt #0d425b

## make/edit clip state error message

source: [http://grocchtdreis.de/fuer-jsfiddle/video/sintel\\_trailer-480.mp4](http://grocchtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4)

The screenshot shows a video player window displaying a close-up of a girl with red hair. The player controls at the bottom include a play/pause button, a progress bar showing 0:13 / 0:52, a volume icon, and a full-screen icon. Below the player is a control bar with 'start' (green) and 'stop' (red) buttons. A large black callout bubble with rounded corners contains the error message: "Stop time must be greater than Start time." The background of the interface is light gray.

This screenshot shows a video player window with a large 'X' drawn across the entire frame, indicating the clip is invalid or deleted. The player controls and error message are identical to the one above.



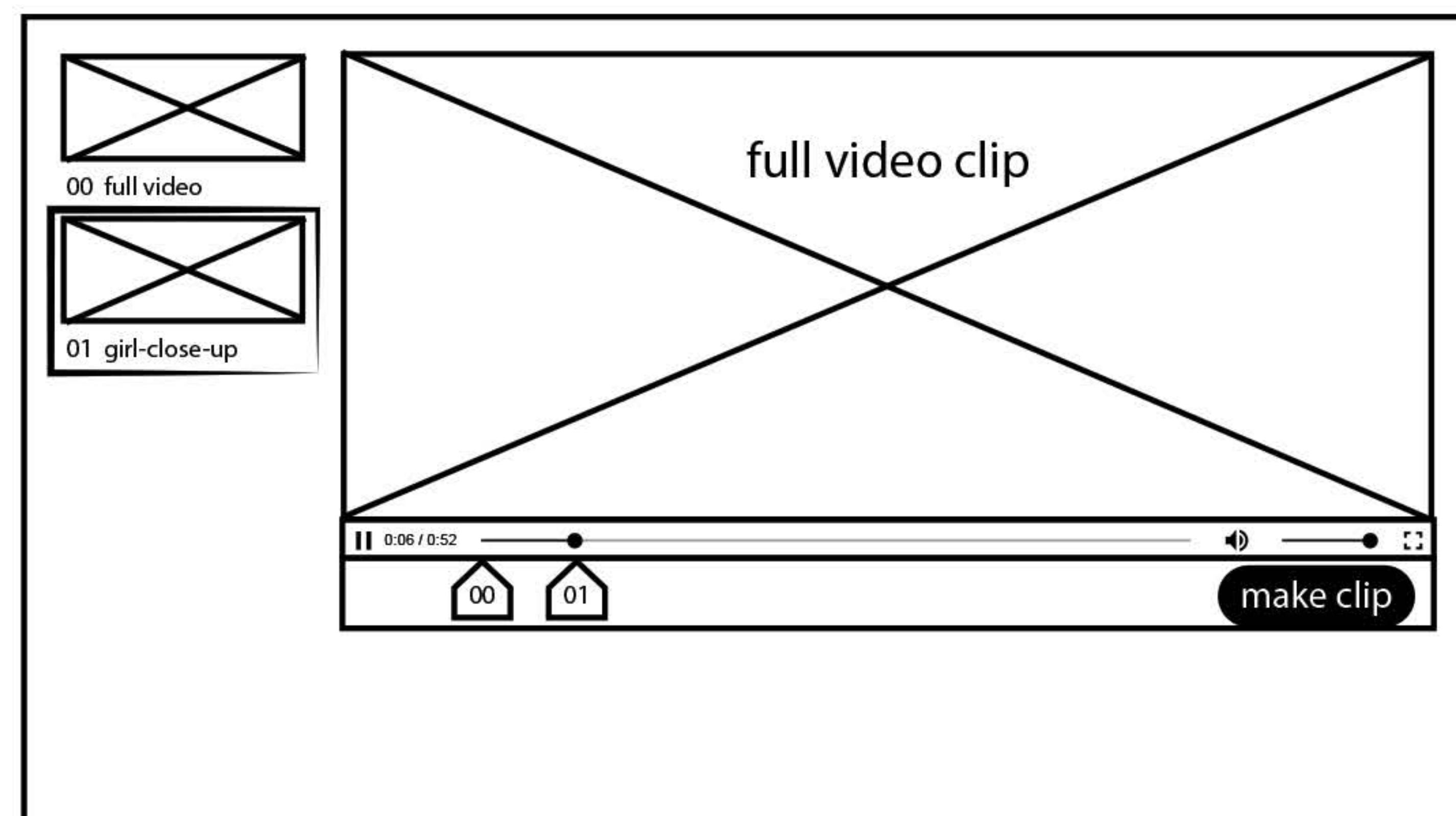
Font Arial 16pt #0d425b

## player state (several clips created, full video selected)

source: [http://grochtdreis.de/fuer-jsfiddle/video/sintel\\_trailer-480.mp4](http://grochtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4)

The screenshot shows a video player interface with the following elements:

- Top Bar:** "play all" with a checkbox and "export data" button.
- Left Column:** A list of four clips:
  - 00 full video (image: person in snowy landscape)
  - 01 girl close-up (image: girl's face)
  - 02 girl xtreme cu (image: girl's face at sunset)
  - 03 long shot (image: desert landscape)
- Preview Area:** A large image of a girl with red hair, looking surprised, with a timestamp of 0:06 / 0:52.
- Bottom Bar:** A timeline with markers for clips 00, 01, 02, 03, and a "make clip" button.



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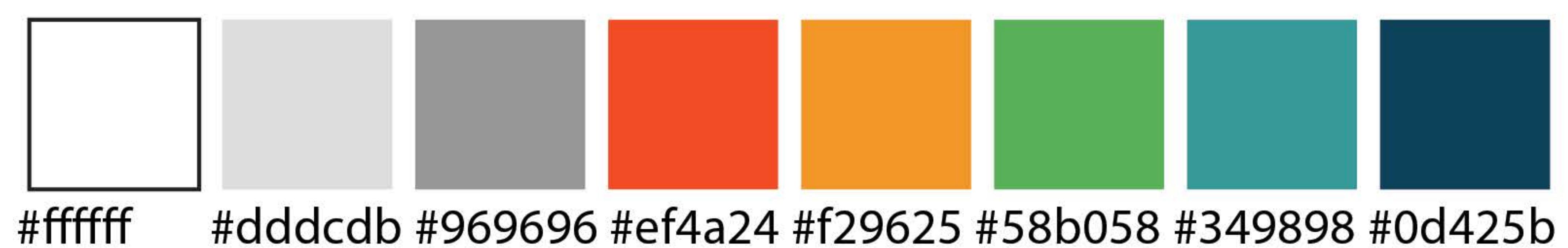
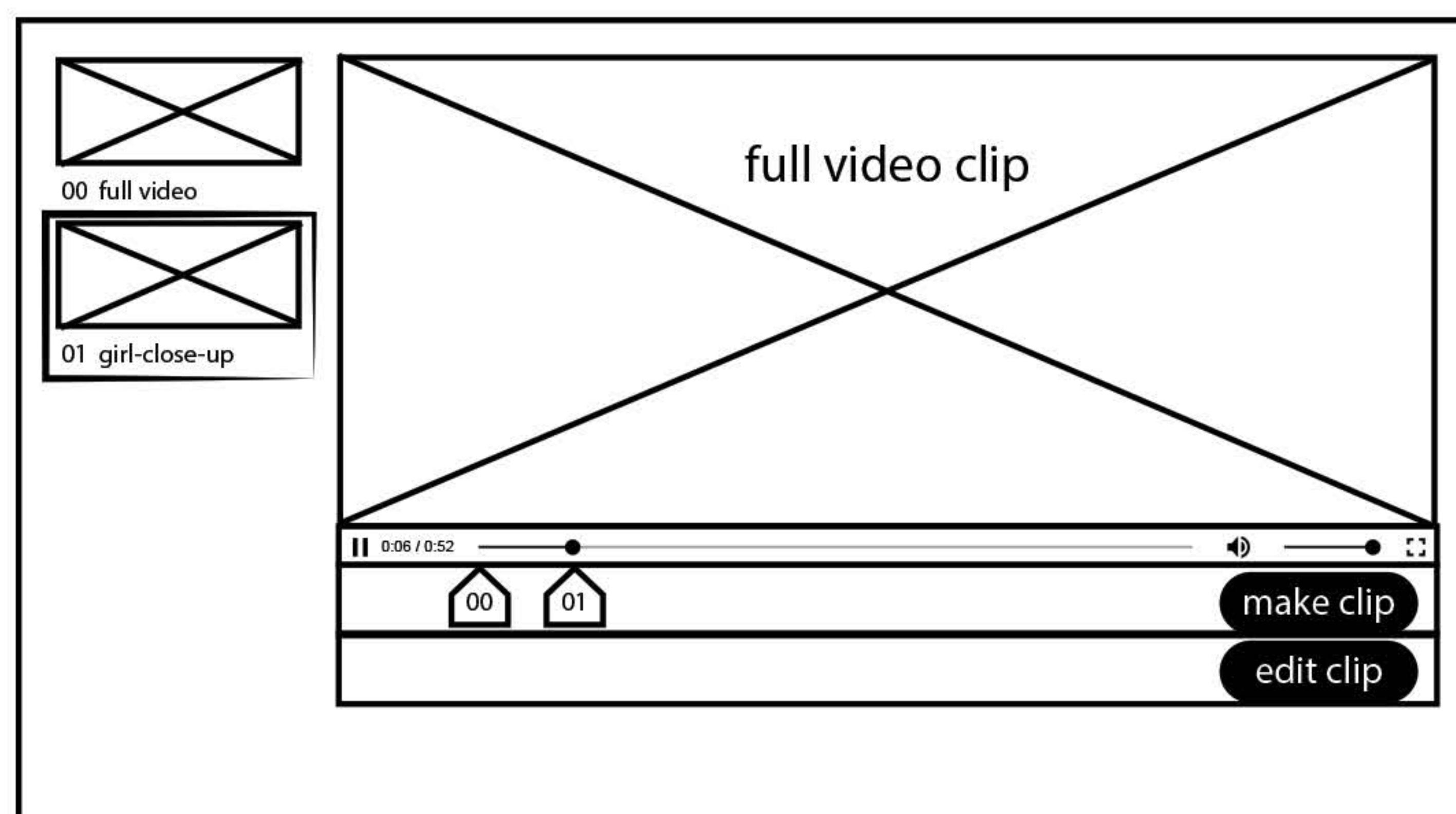
## player state (several clips created, one selected)

source: [http://grocchtdreis.de/fuer-jsfiddle/video/sintel\\_trailer-480.mp4,#t=13.0,15.4](http://grocchtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4,#t=13.0,15.4)

The interface shows a list of four video clips on the left and a large preview window on the right. The clips are:

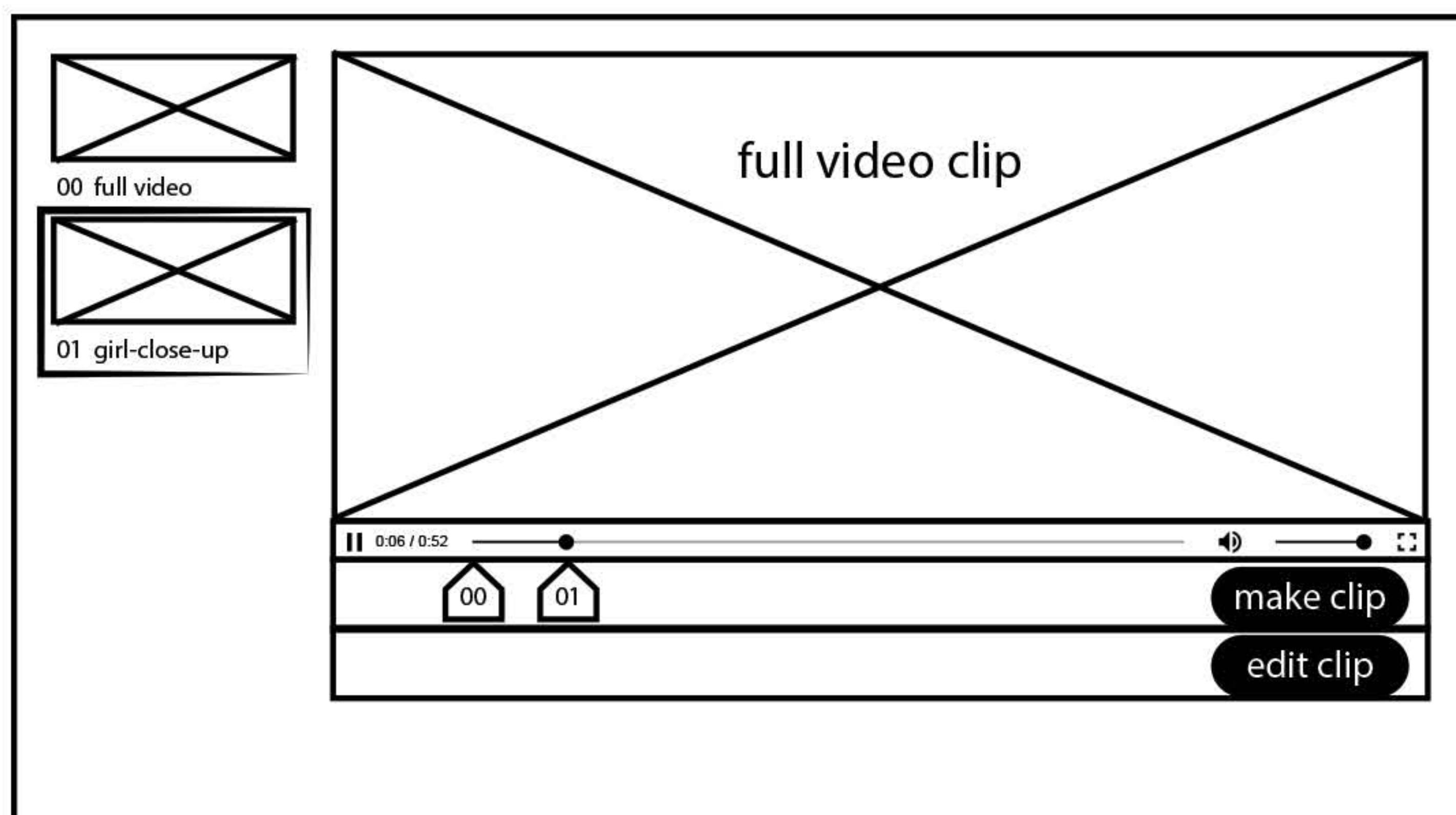
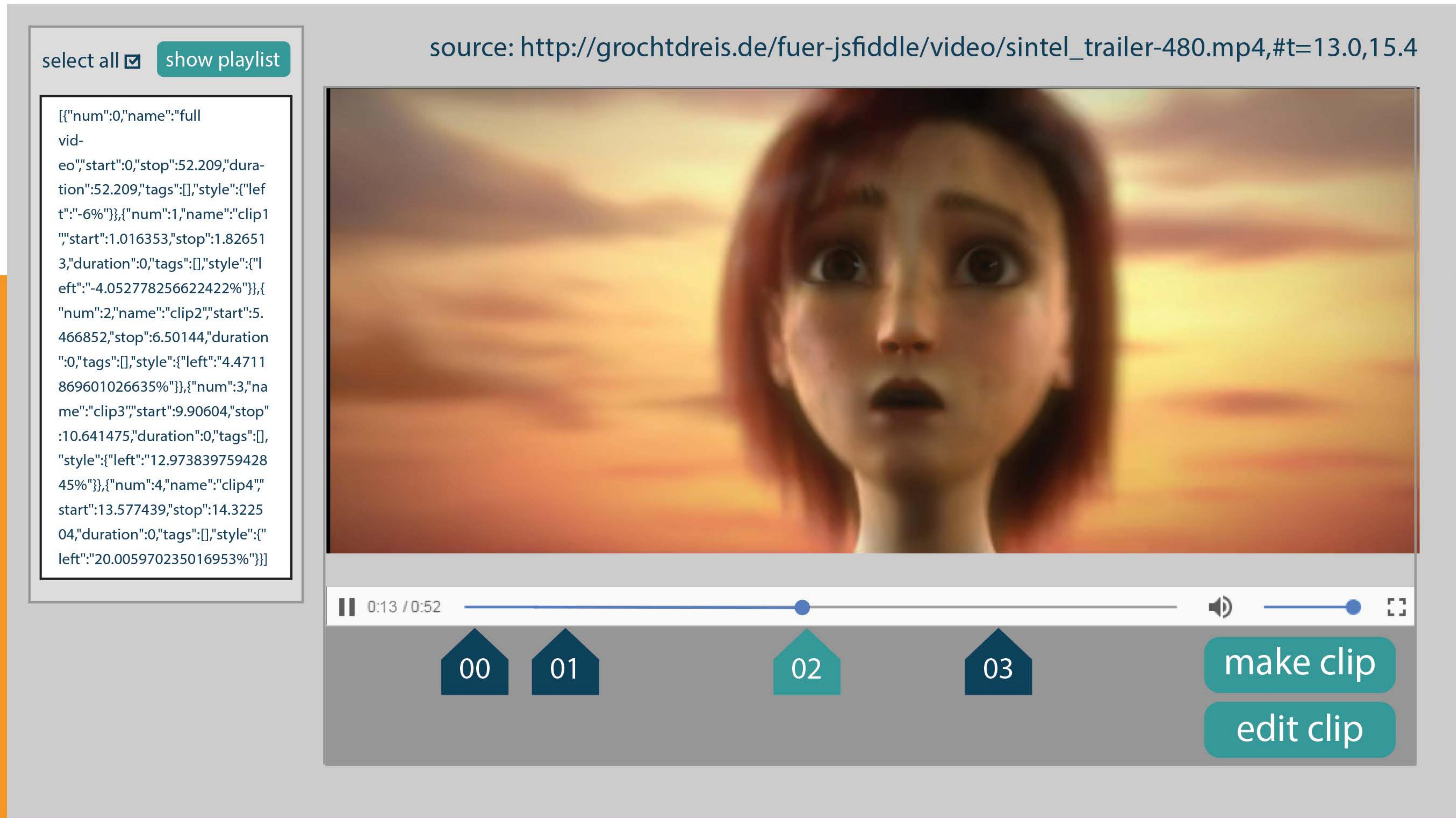
- 00 full video
- 01 girl close-up
- 02 girl xtreme cu (selected)
- 03 long shot

Below the preview window is a control bar with a timeline showing 0:13 / 0:52, volume controls, and buttons for 00, 01, 02, 03, make clip, and edit clip.



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## player state (export data button clicked)



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