

Assignment

Create an application that allows a user to sliceup a video (sample video: 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

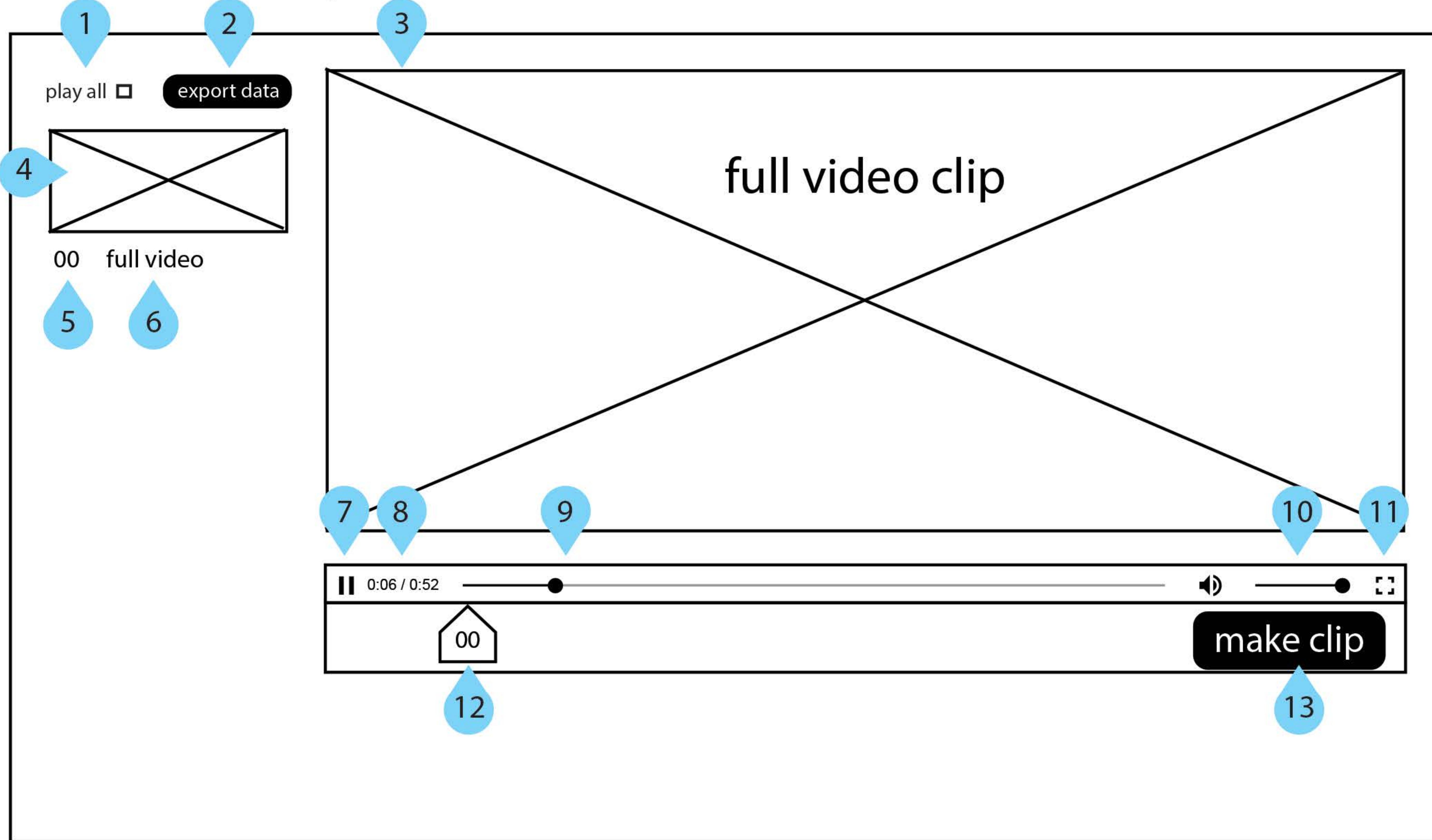
Bonus (Completed)

- 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

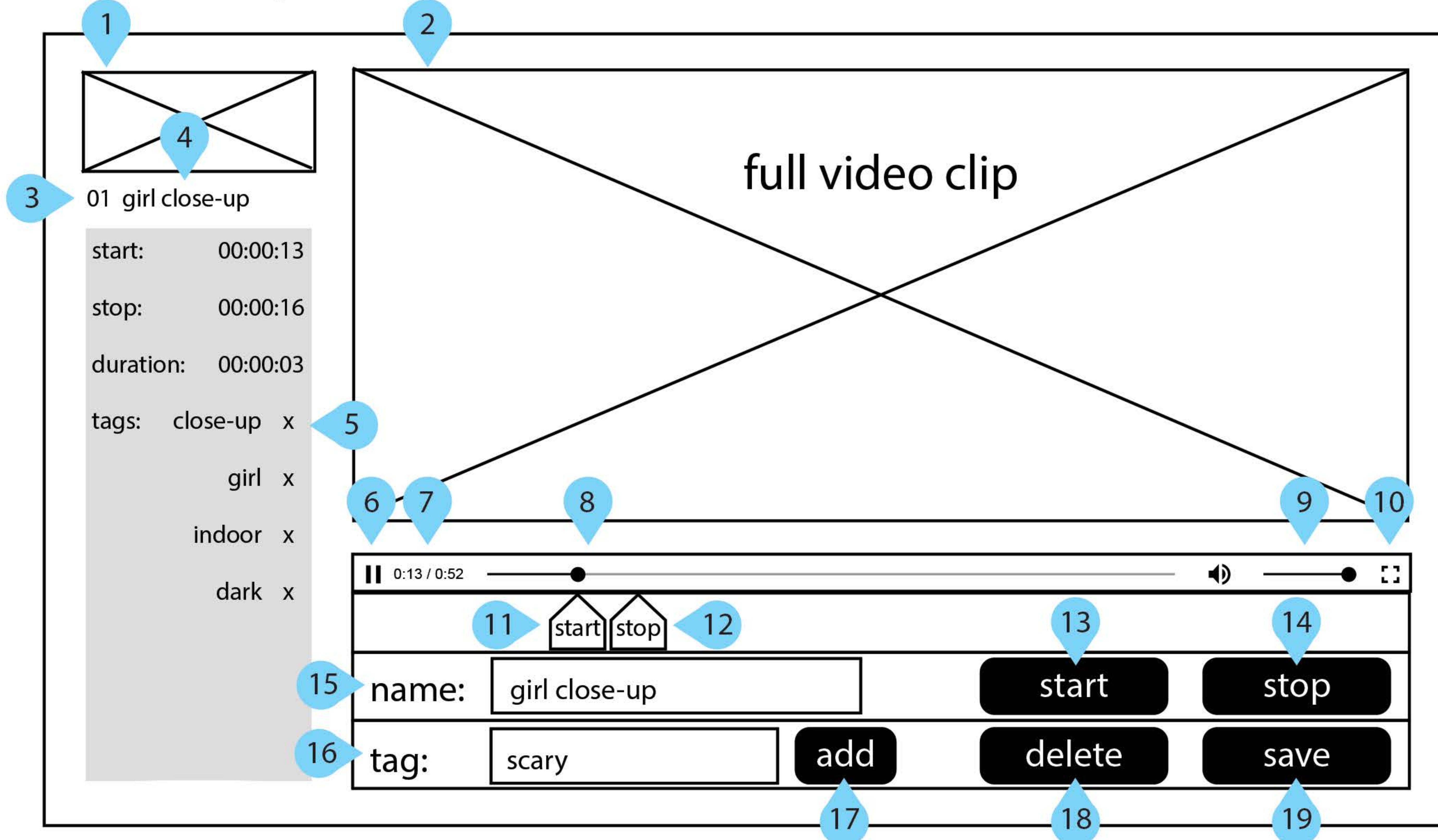
initial state (no clips created)



- 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

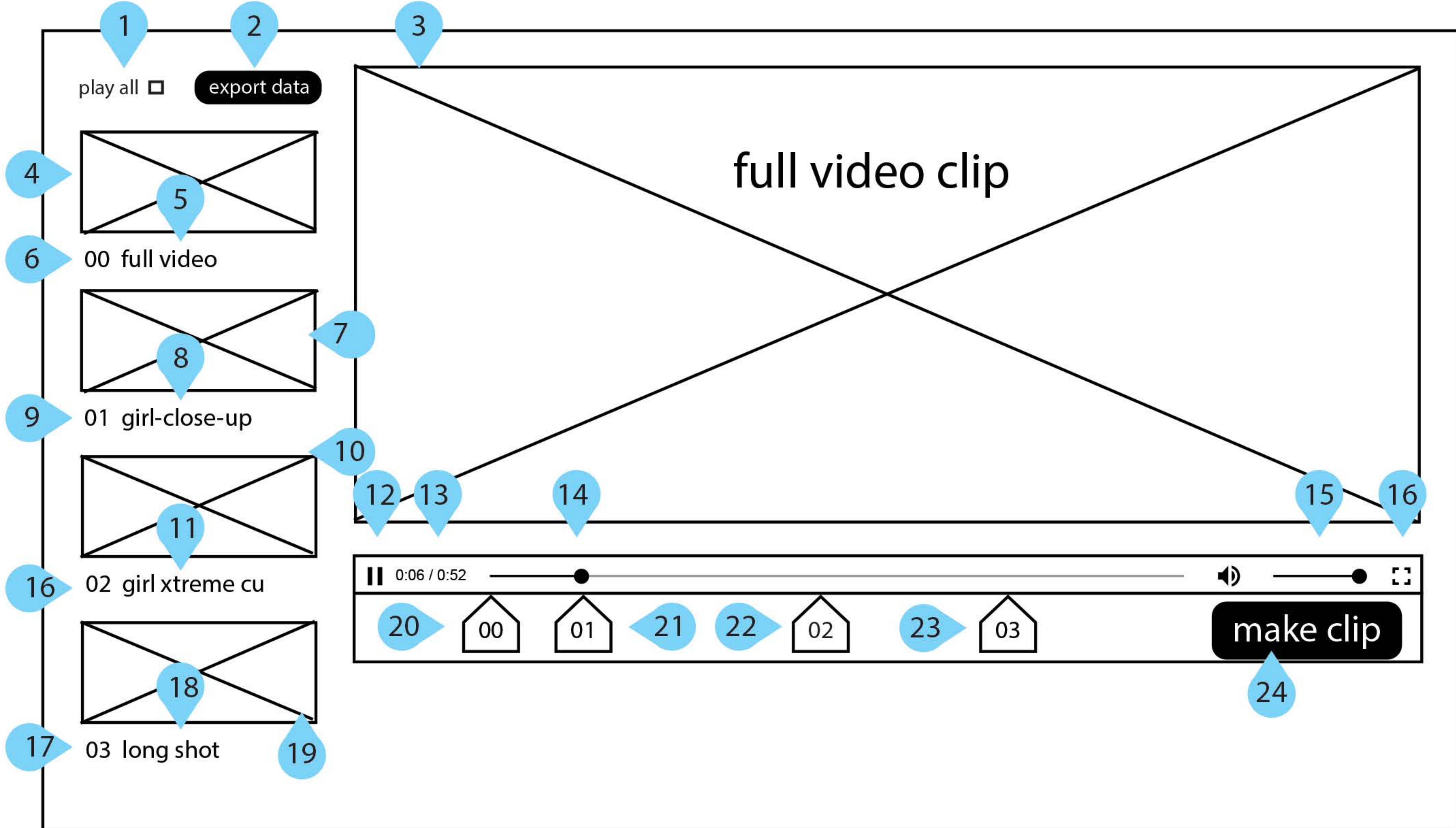
make/edit clip state



- 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

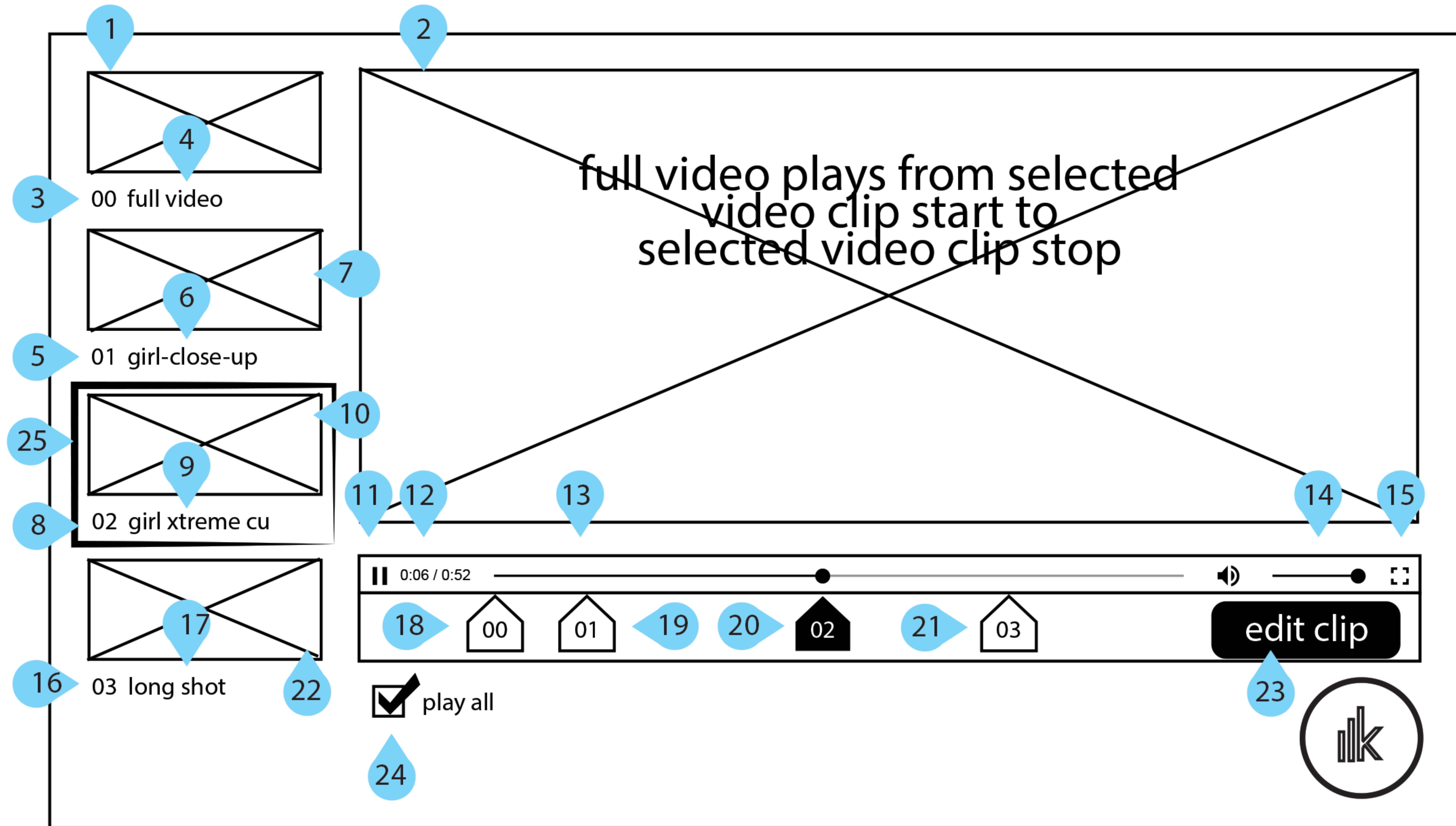
player state (several clips created, none selected)



- 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

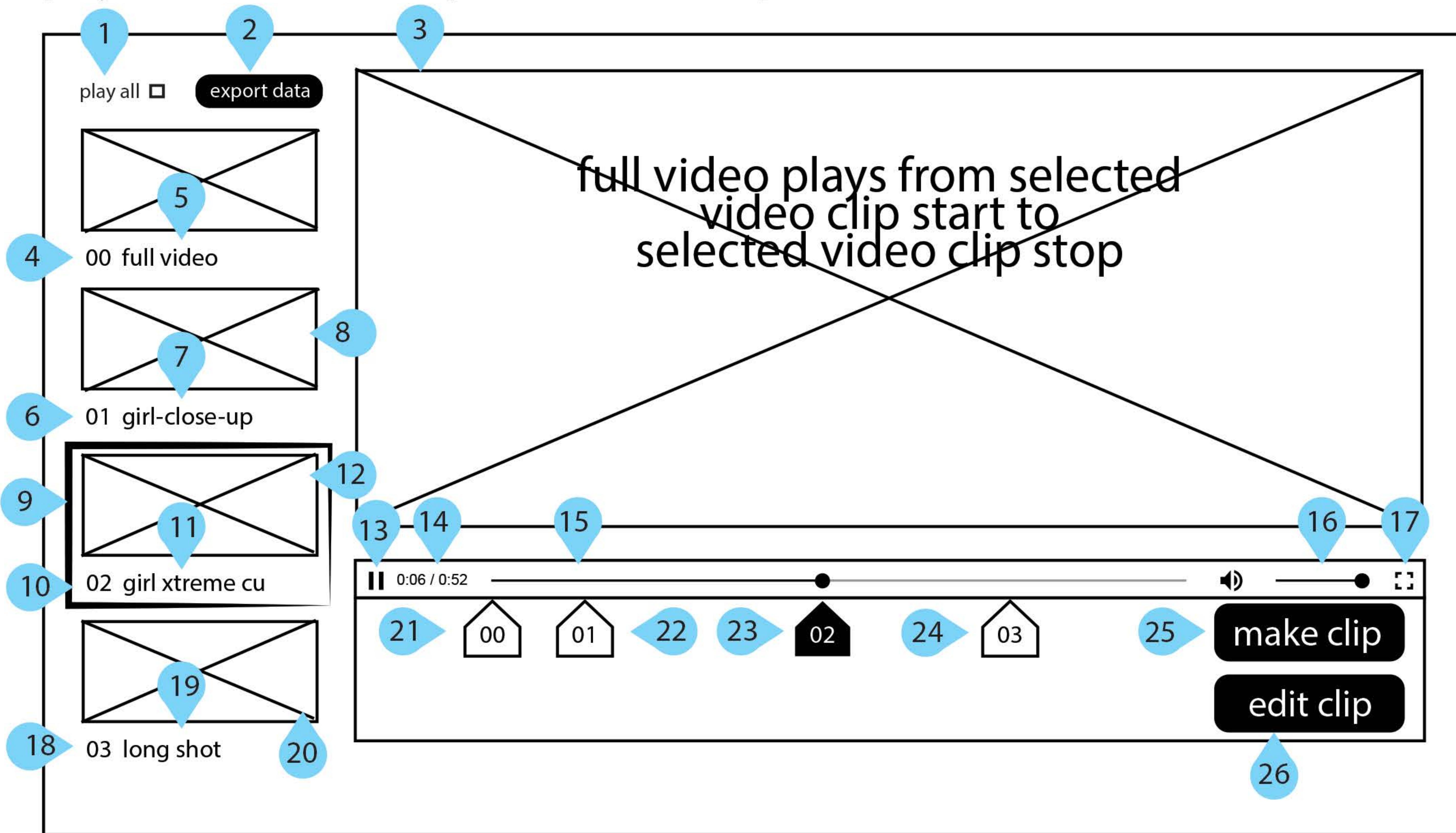
player state (several clips created, one selected)



- 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

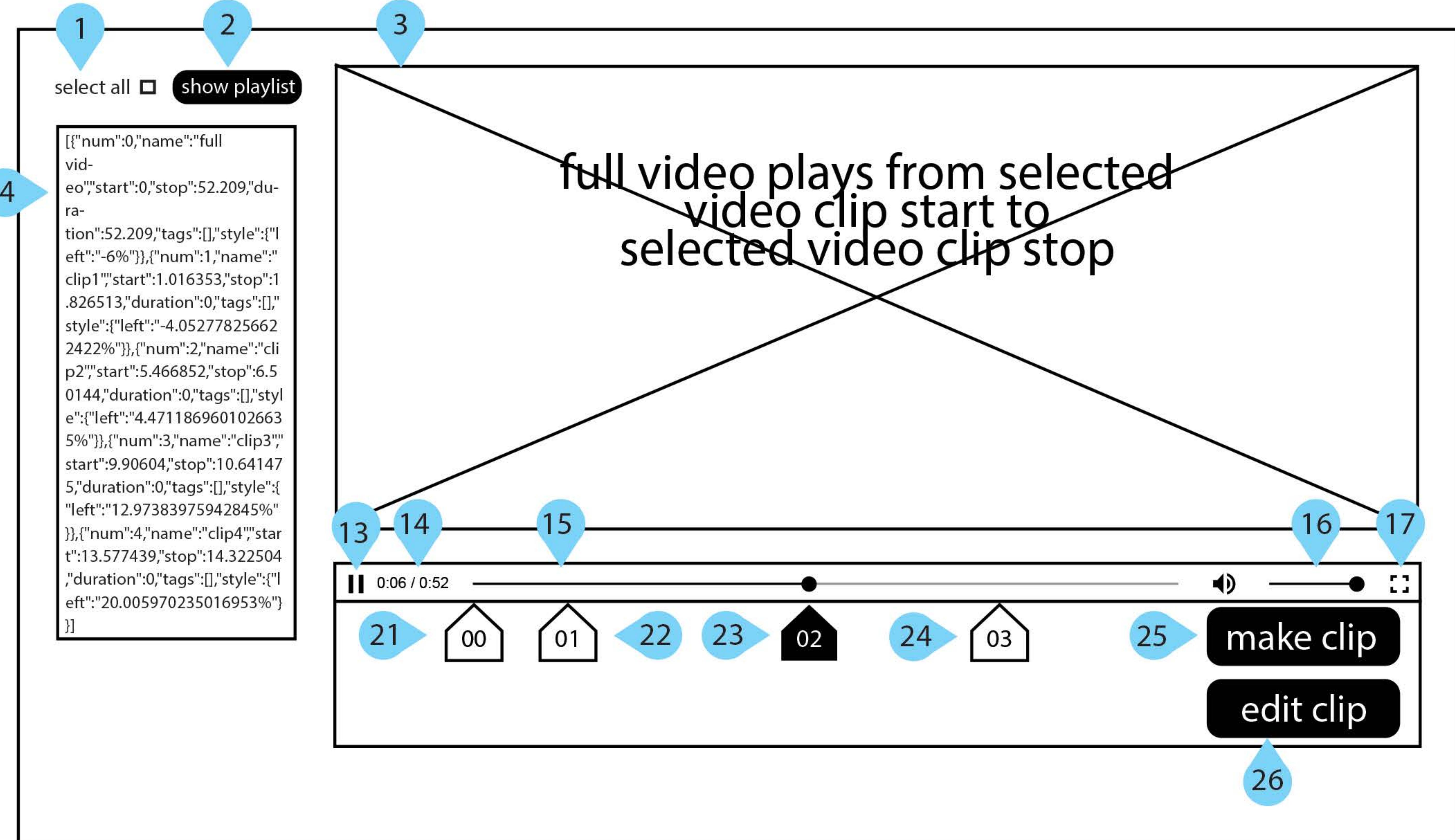
player state (several clips created, one clip selected)



- 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

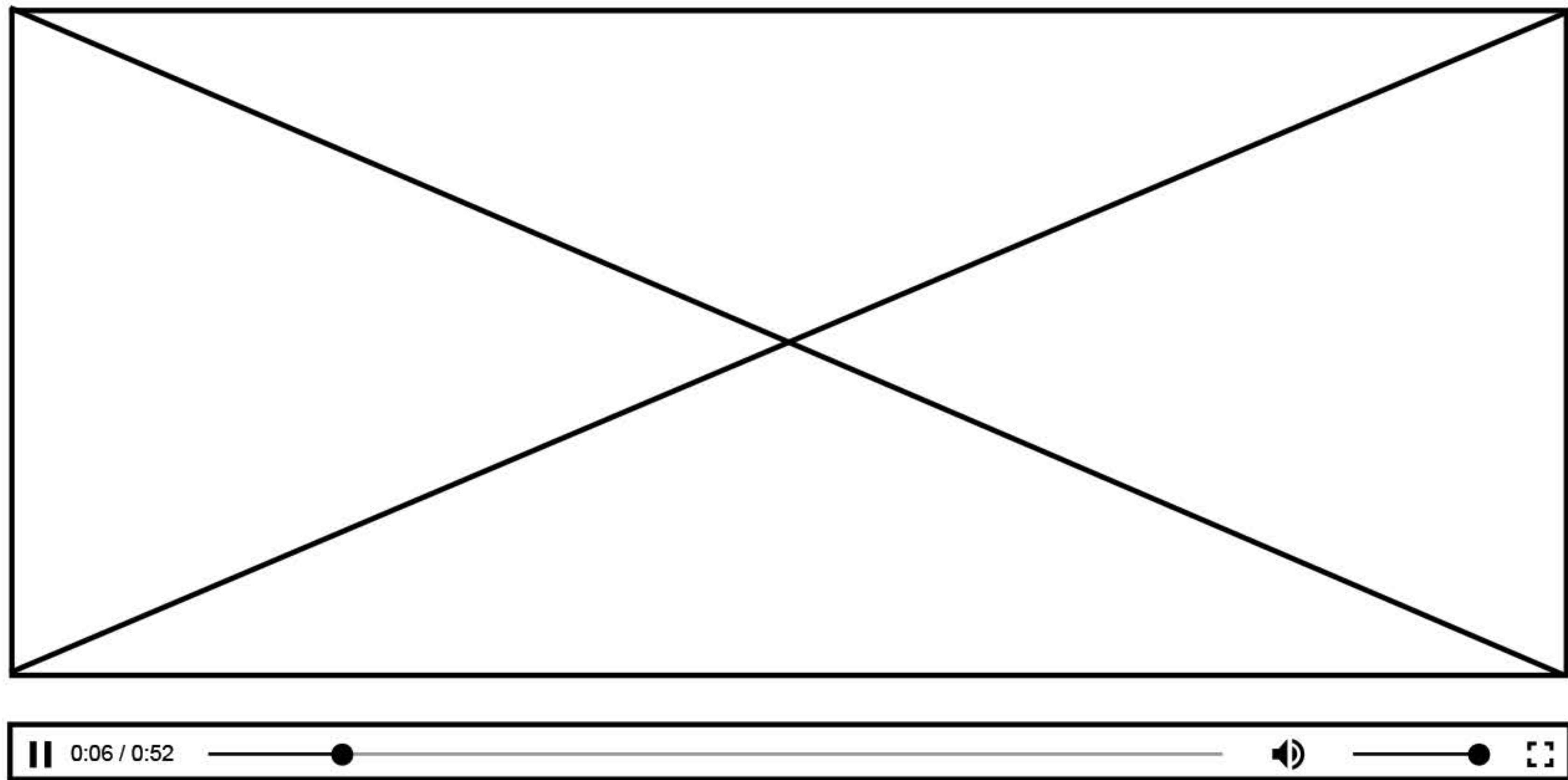
Software Architecture

user flow



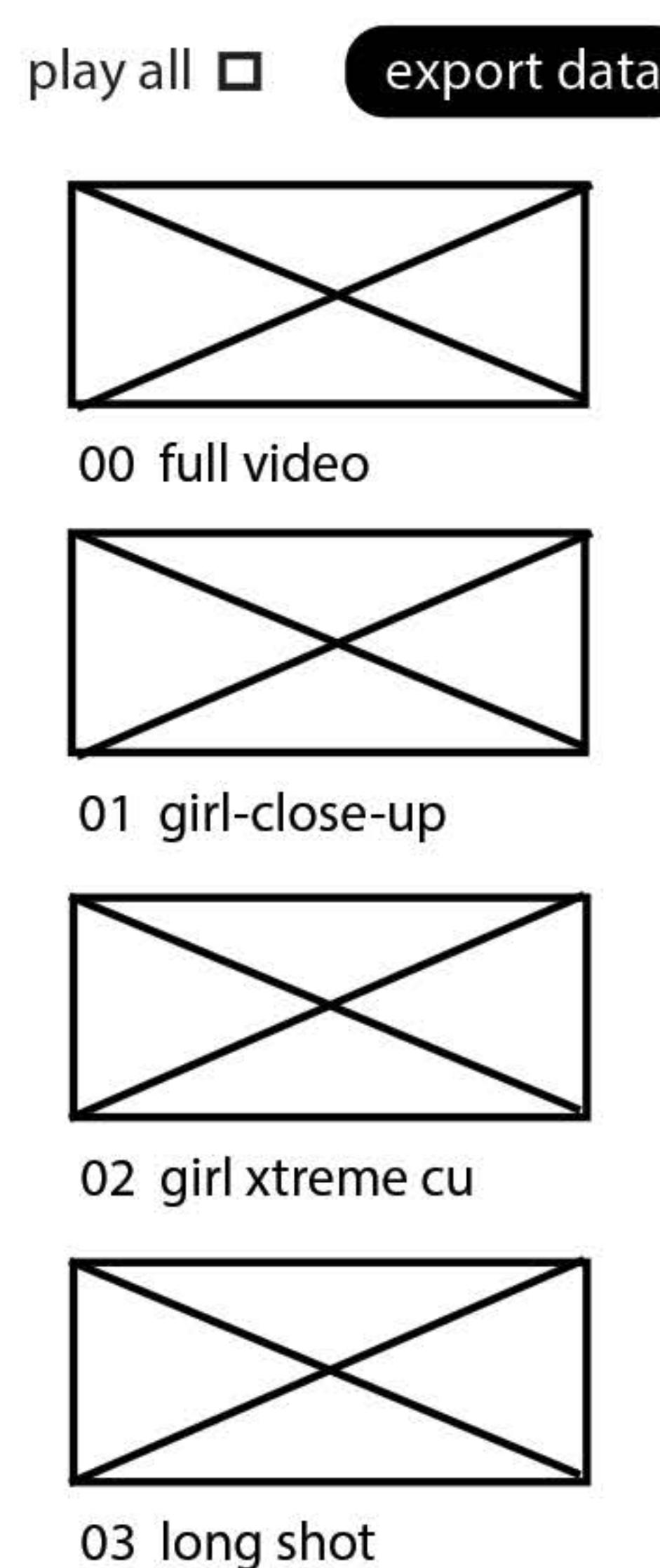
HTML5 native video player

<video></video>



Angular Directives

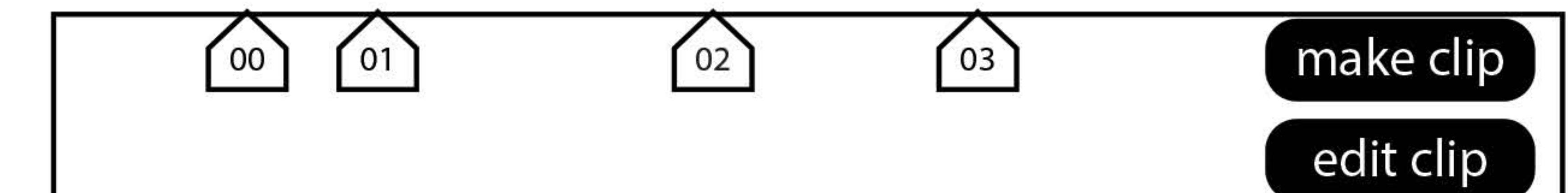
<video-thumbs></video-thumbs>
video-thumbs.html



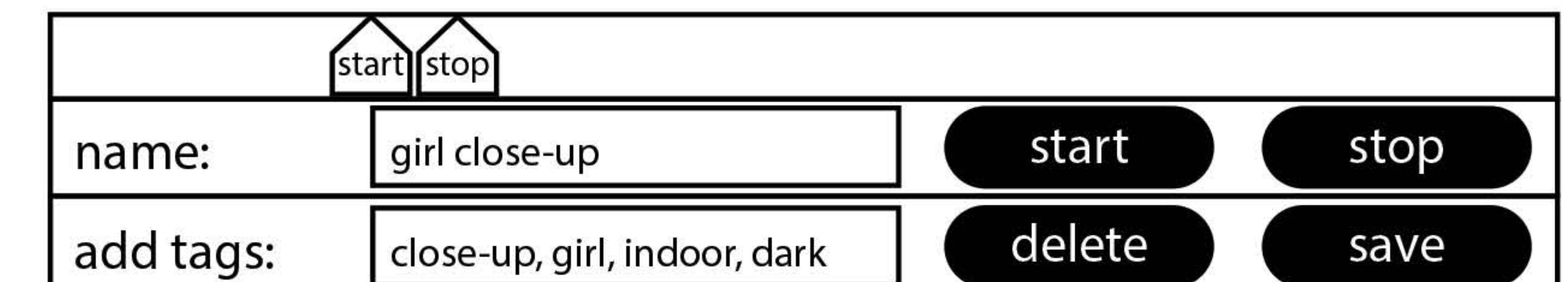
<video-clipinfo></video-clipinfo>
video-clipinfo.html



<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.loading = true;  
  clipper.activeThumb = 0;  
  clipper.playall = false;  
  clipper.isMakeclipOpen = false;  
  clipper.clips = videoInfo.clips;  
  clipper.state = "player";  
  clipper.firstTime == true;  
  clipper.fullvideo = document.getElementById('fullvideo');  
  
  clipper.fullvideo.addEventListener('loadedmetadata', function (e) { ... }.bind(clipper), false);  
  
  clipper.fullvideo.addEventListener('timeupdate', function (e) { ... }.bind(clipper), false);  
  
  clipper.fullvideo.addEventListener('ended', function (e) { ... }.bind(clipper), false);  
  
  clipper.tempClip = { ... };  
  
  clipper.isActive = function(num) { ... };  
  
  clipper.isLoading = function() { ... }  
  
  clipper.setActive = function(num) { .. };  
  
  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:
  ['$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"
};  
});
```

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"
};  
});
```

videoMakeclip

```
return {
  restrict: 'E',
  templateUrl: "video-makeclip.html",
controller:
  ['$scope','videoInfo', function($scope,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() { ... };

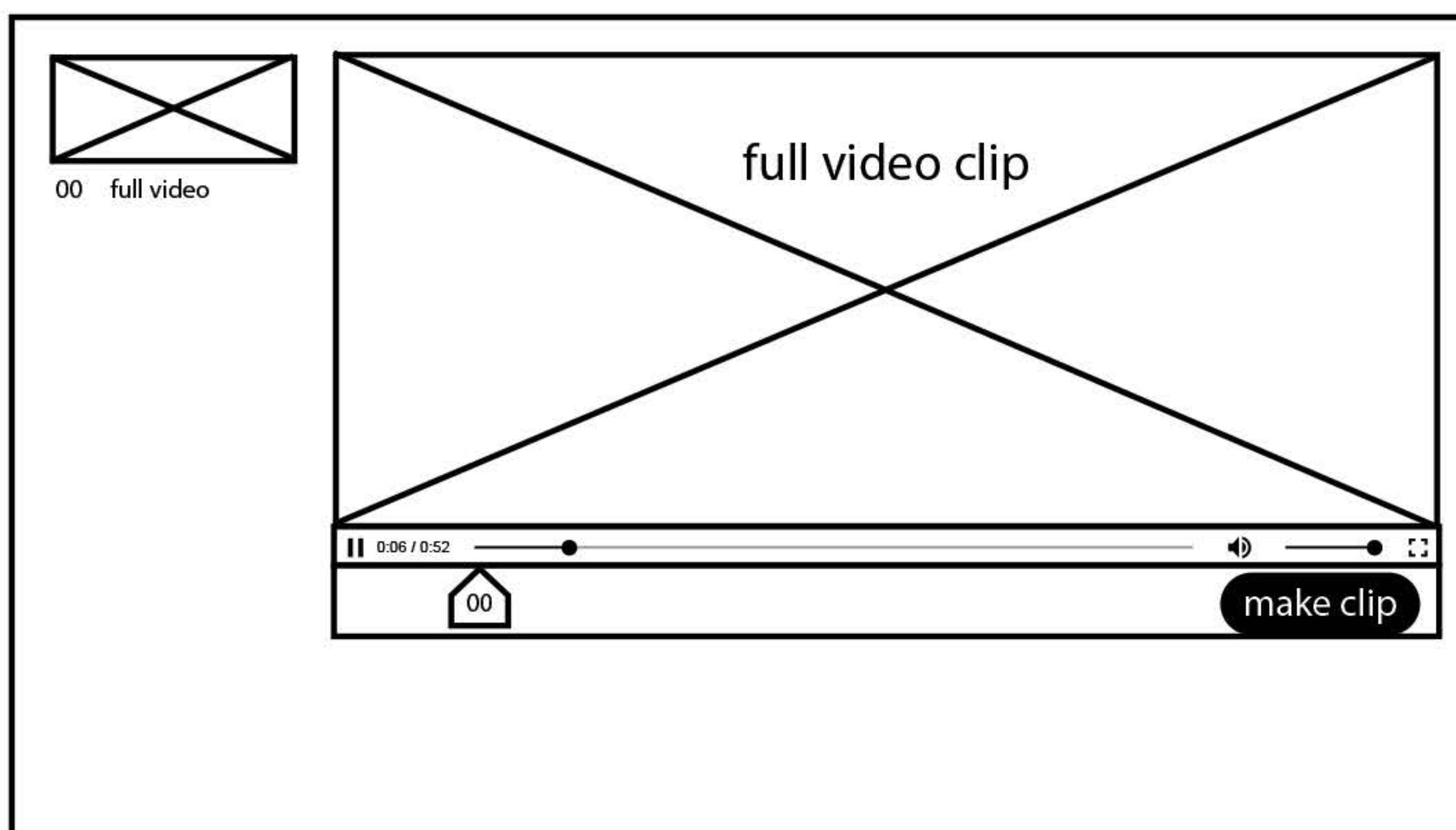
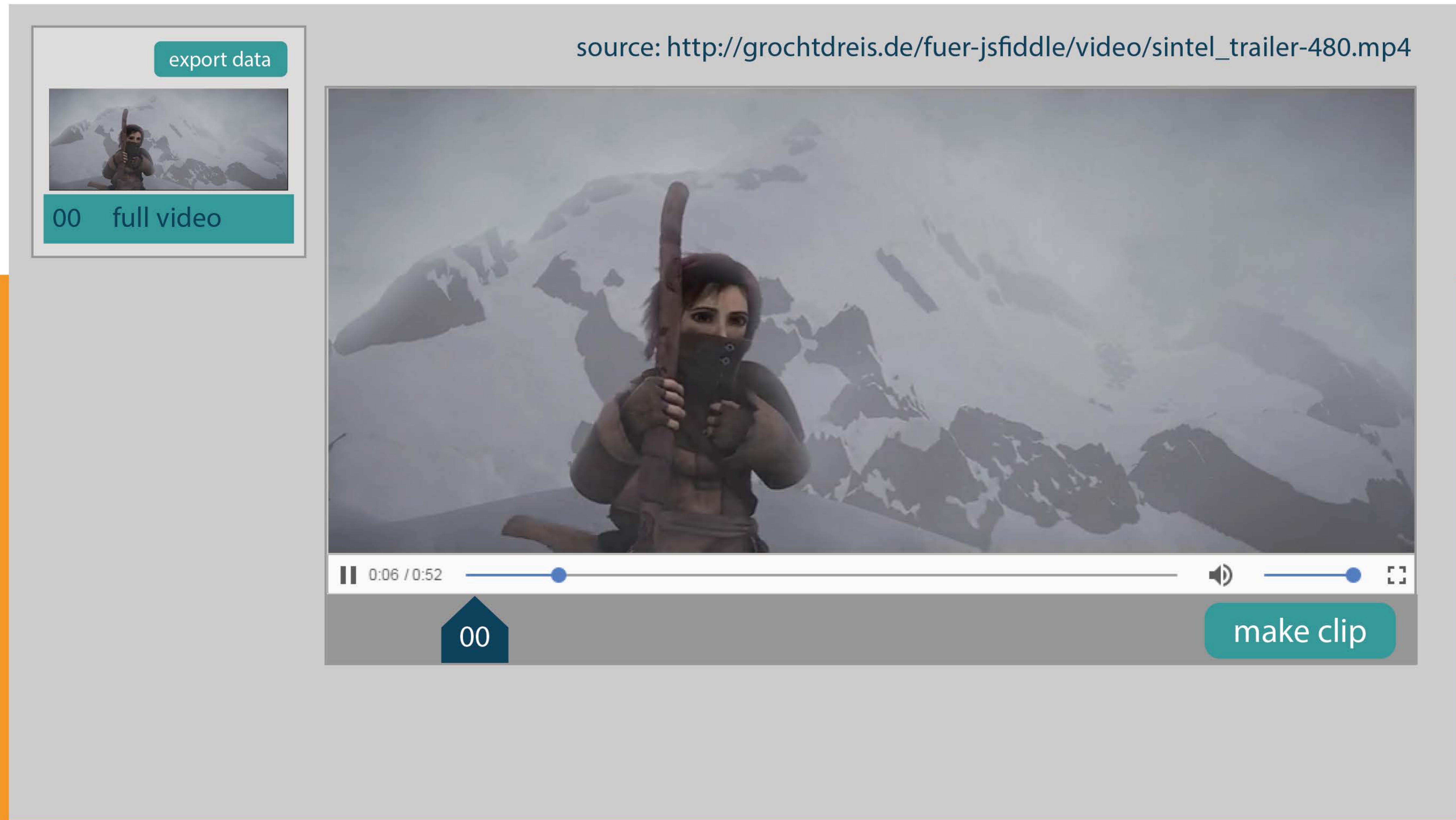
    makeclip.getStyle = function() { ... };

    makeclip.resetMarkers = function() { ... };

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

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

01 girl close-up

start: 00:00:13

stop: 00:00:16

duration: 00:00:03

tags:

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

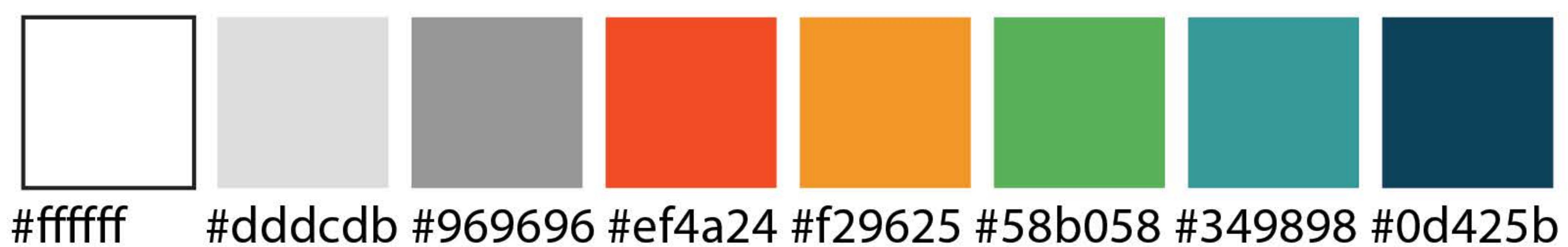
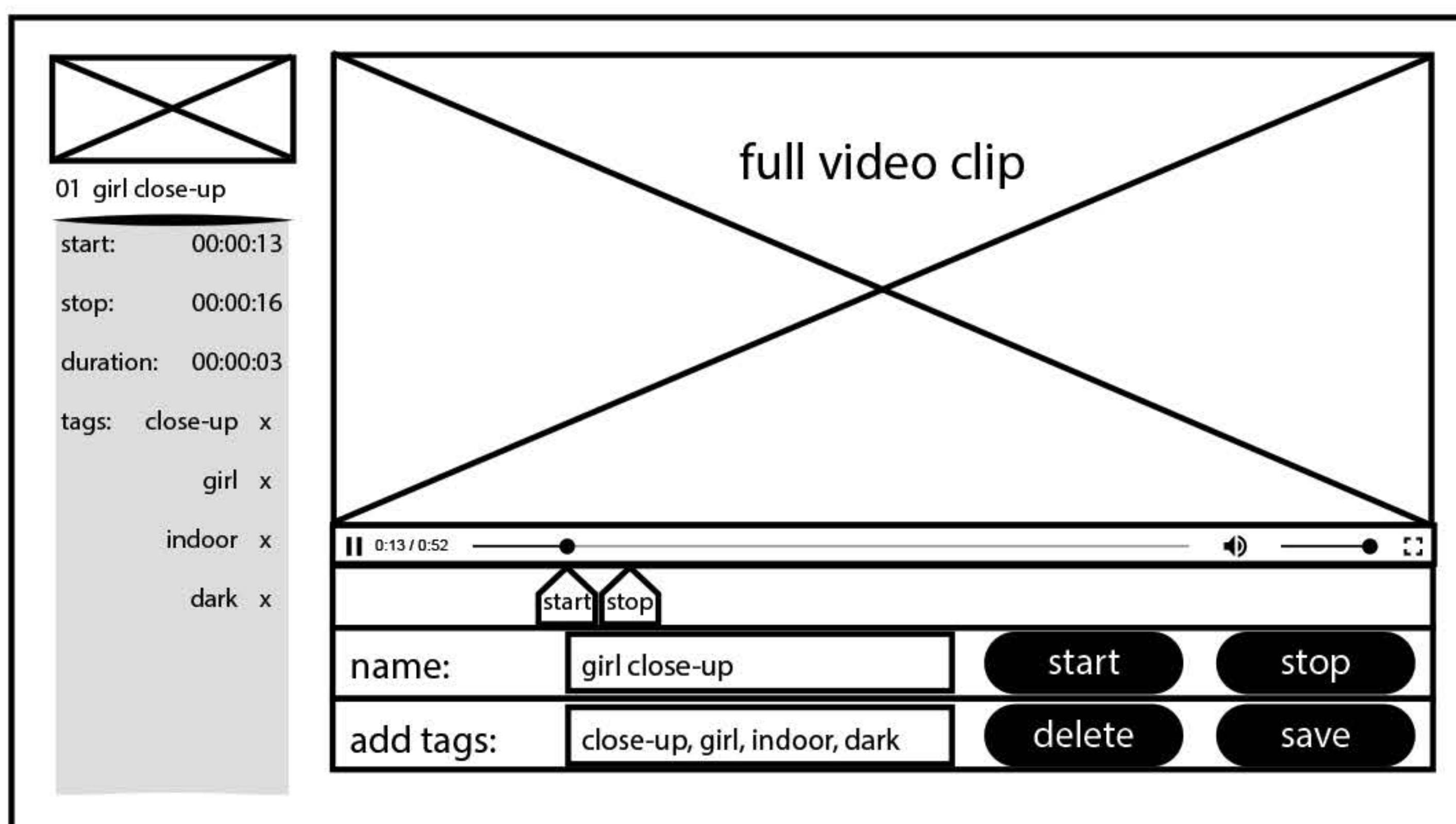
name: girl close-up

add tags: light

start stop

start stop

add delete save



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make/edit clip state error message

source: 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.

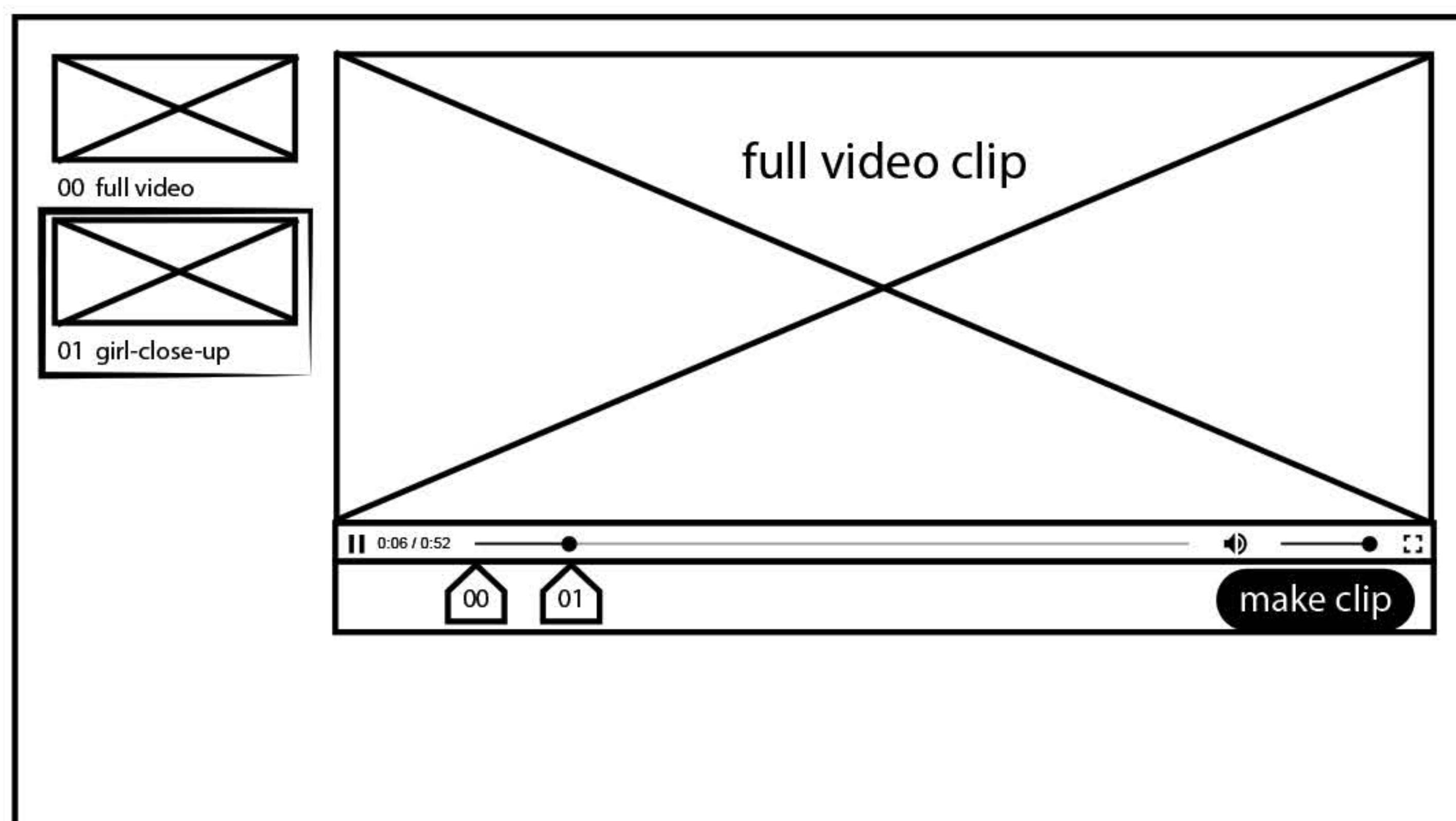


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player state (several clips created, full video selected)

source: http://grochtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4

The screenshot shows a video player interface. On the left, there is a sidebar with four thumbnail previews labeled 00, 01, 02, and 03. Each thumbnail has a caption below it: 'full video', 'girl close-up', 'girl xtreme cu', and 'long shot' respectively. At the top right of the sidebar are two buttons: 'play all' with a checkbox and 'export data'. At the bottom right of the sidebar is a 'make clip' button. The main area displays a large video frame showing a close-up of a character with red hair. Below the video frame is a control bar with a play/pause button, a progress bar showing '0:06 / 0:52', a volume icon, and a full-screen icon. At the bottom of the main area are four small house-shaped buttons labeled 00, 01, 02, and 03, each corresponding to one of the thumbnails in the sidebar.



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player state (several clips created, one selected)

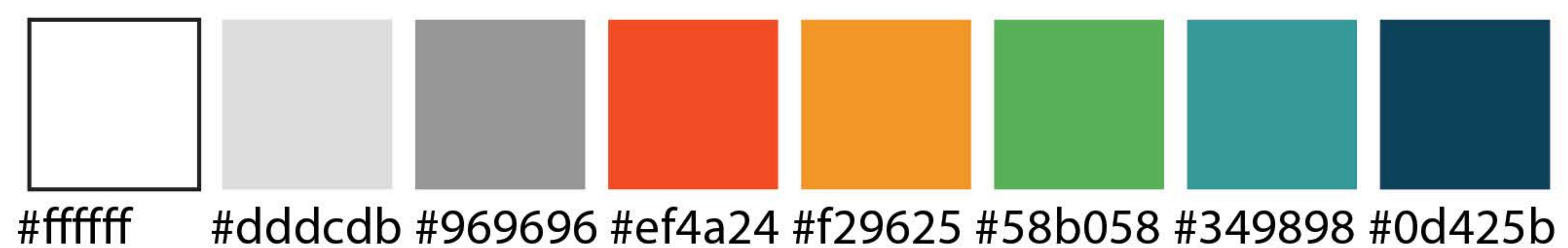
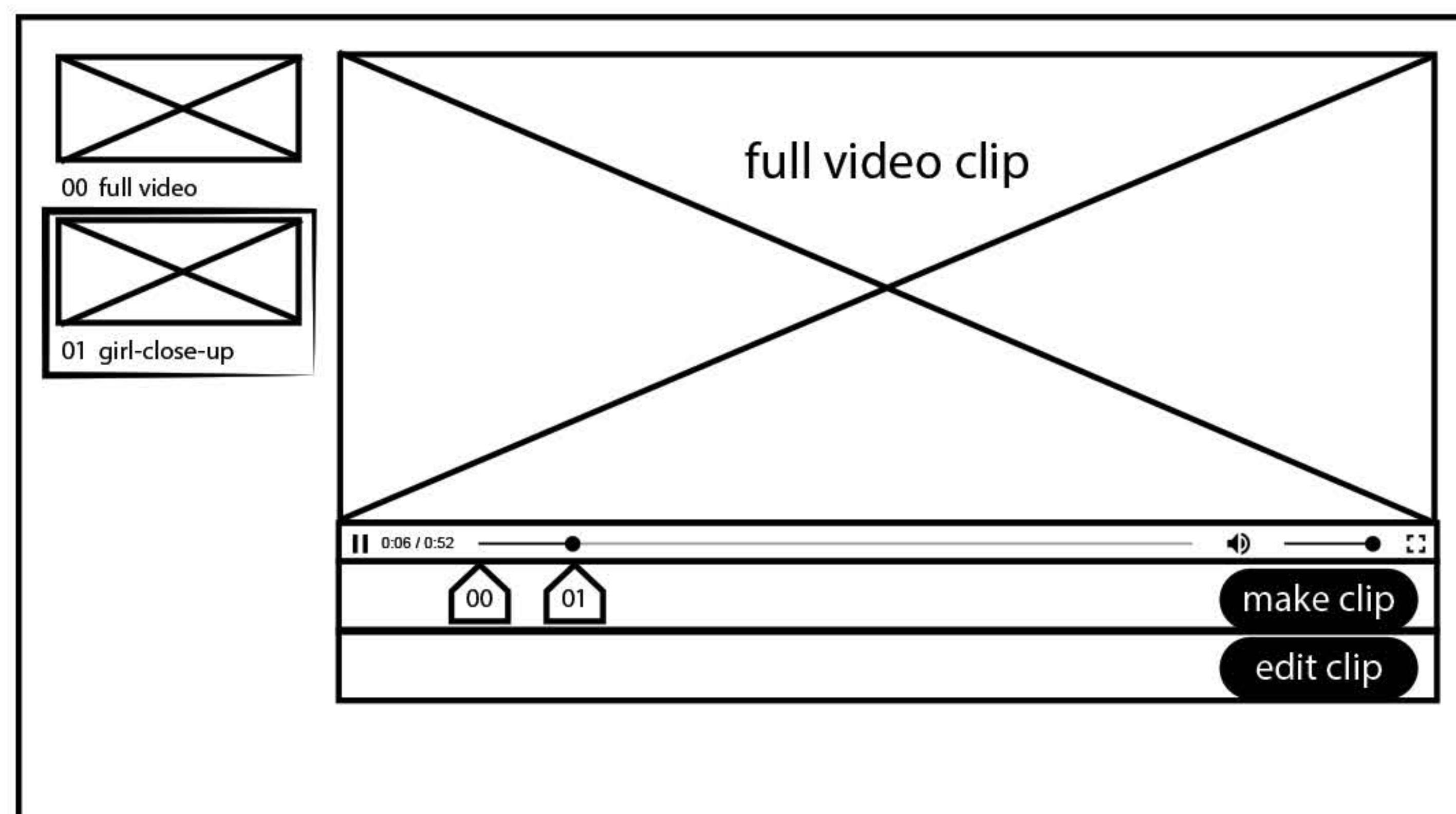
source: http://grocchtdreis.de/fuer-jsfiddle/video/sintel_trailer-480.mp4,#t=13.0,15.4

The interface shows a list of four video clips on the left:

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

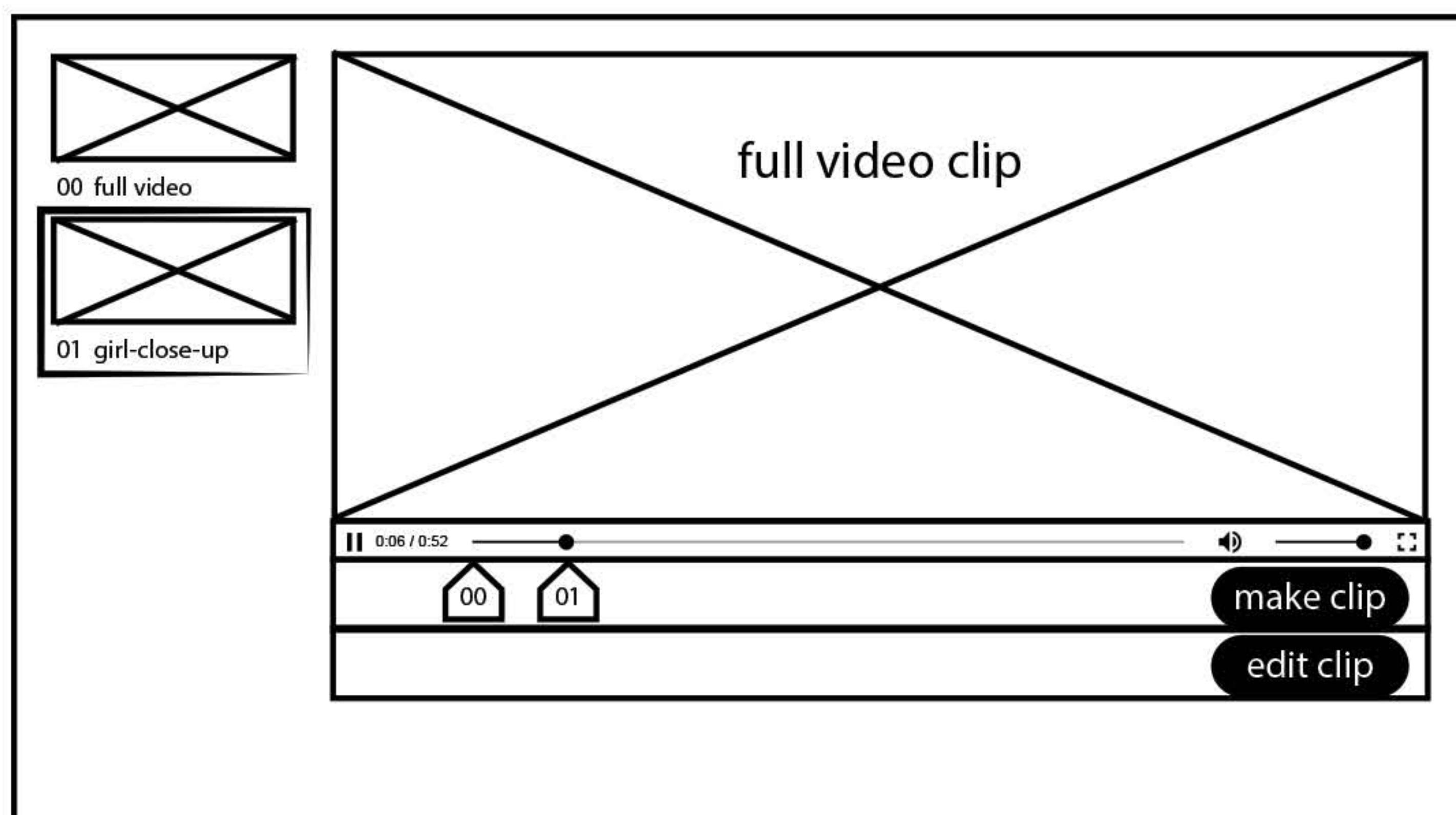
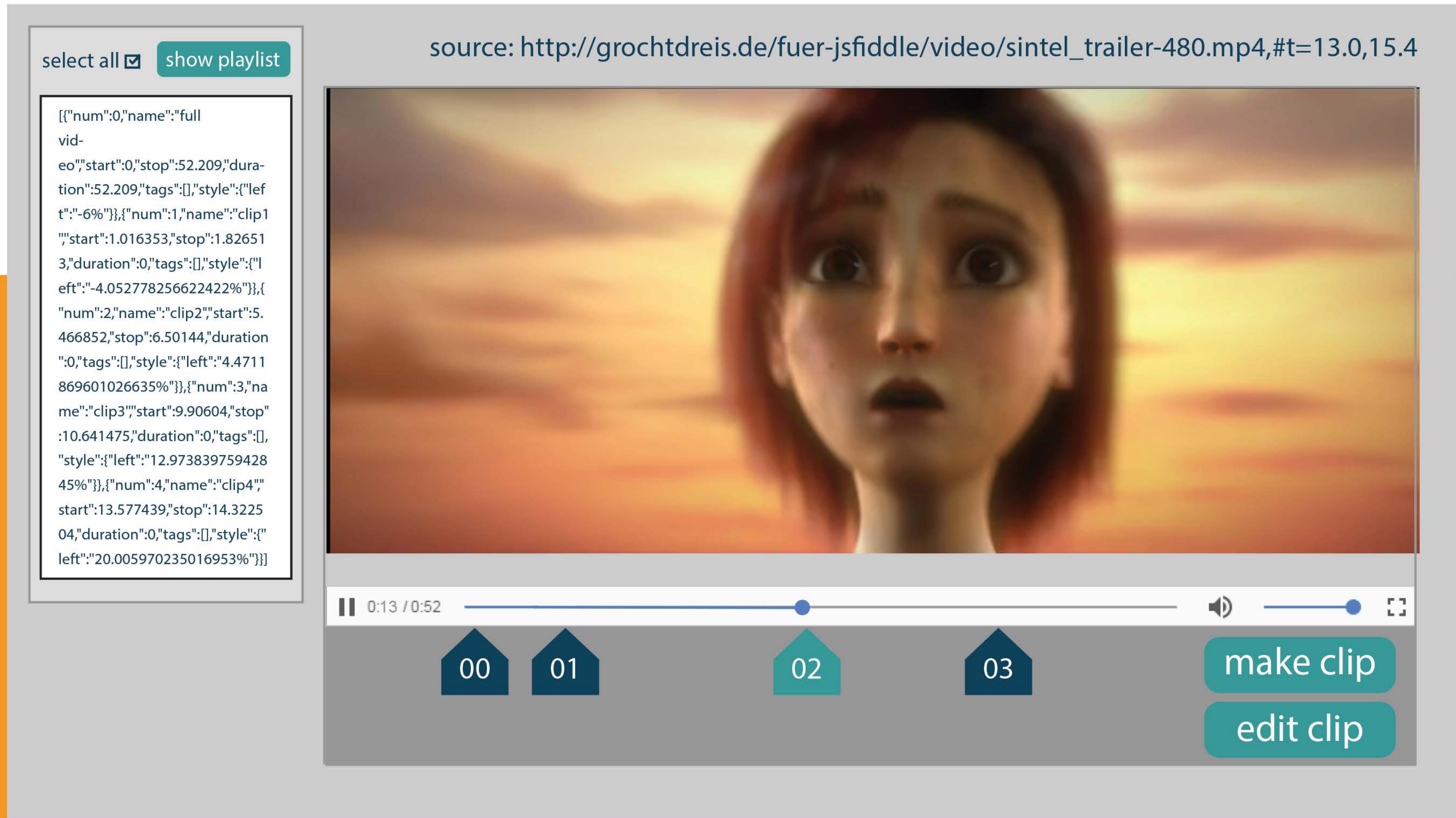
The main area displays a frame from the selected clip (02) showing a girl's face against a sunset background. Below the frame is a playback control bar with a timeline at 0:13 / 0:52, volume, and zoom controls.

Below the control bar are four numbered buttons (00, 01, 02, 03) corresponding to the clips in the list. To the right are two buttons: "make clip" and "edit clip".



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player state (export data button clicked)



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