Assignment

Create an application that allows a user to sliceup a video (sample video: http://grochtdreis.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

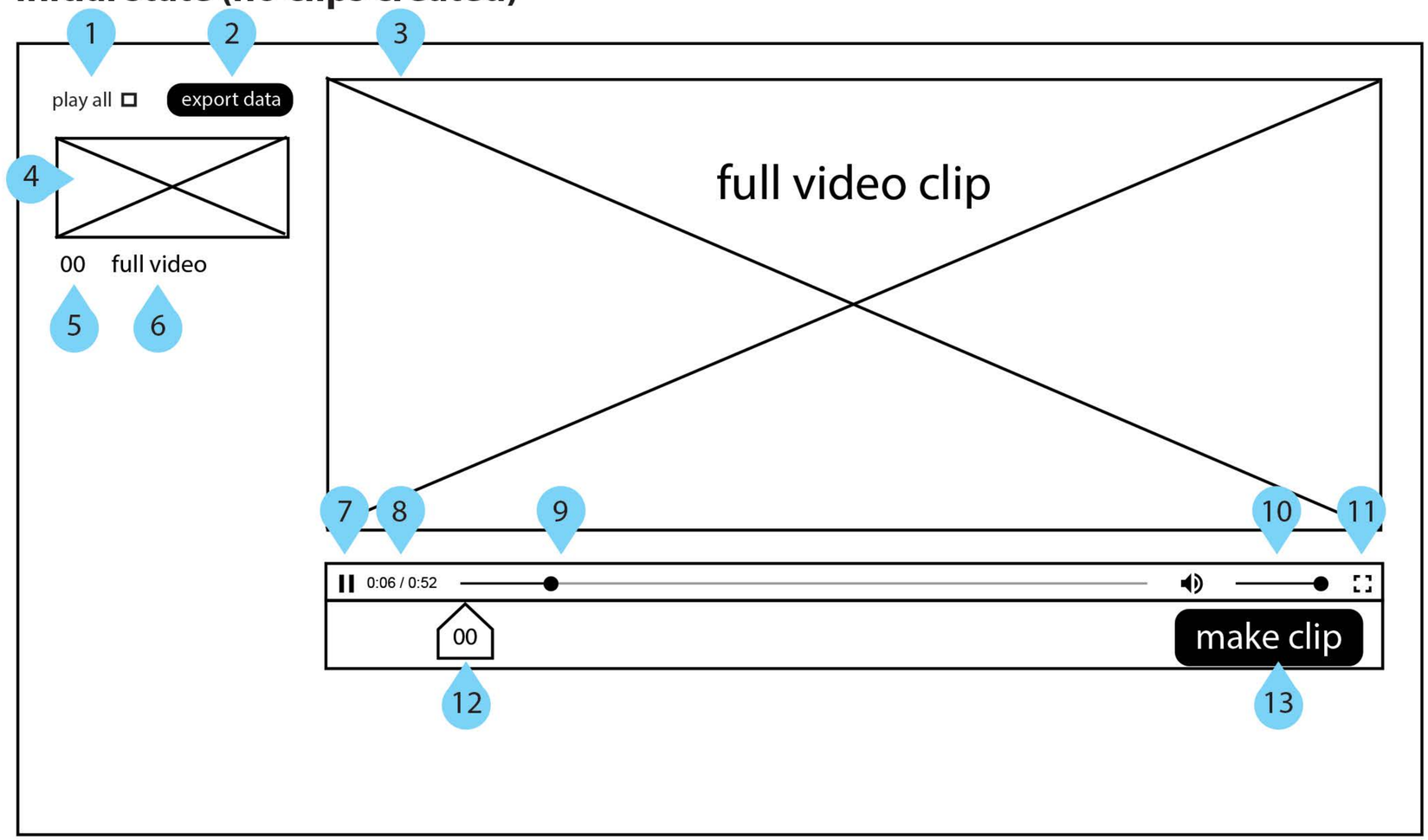
Bonus (Completed)

- 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)



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

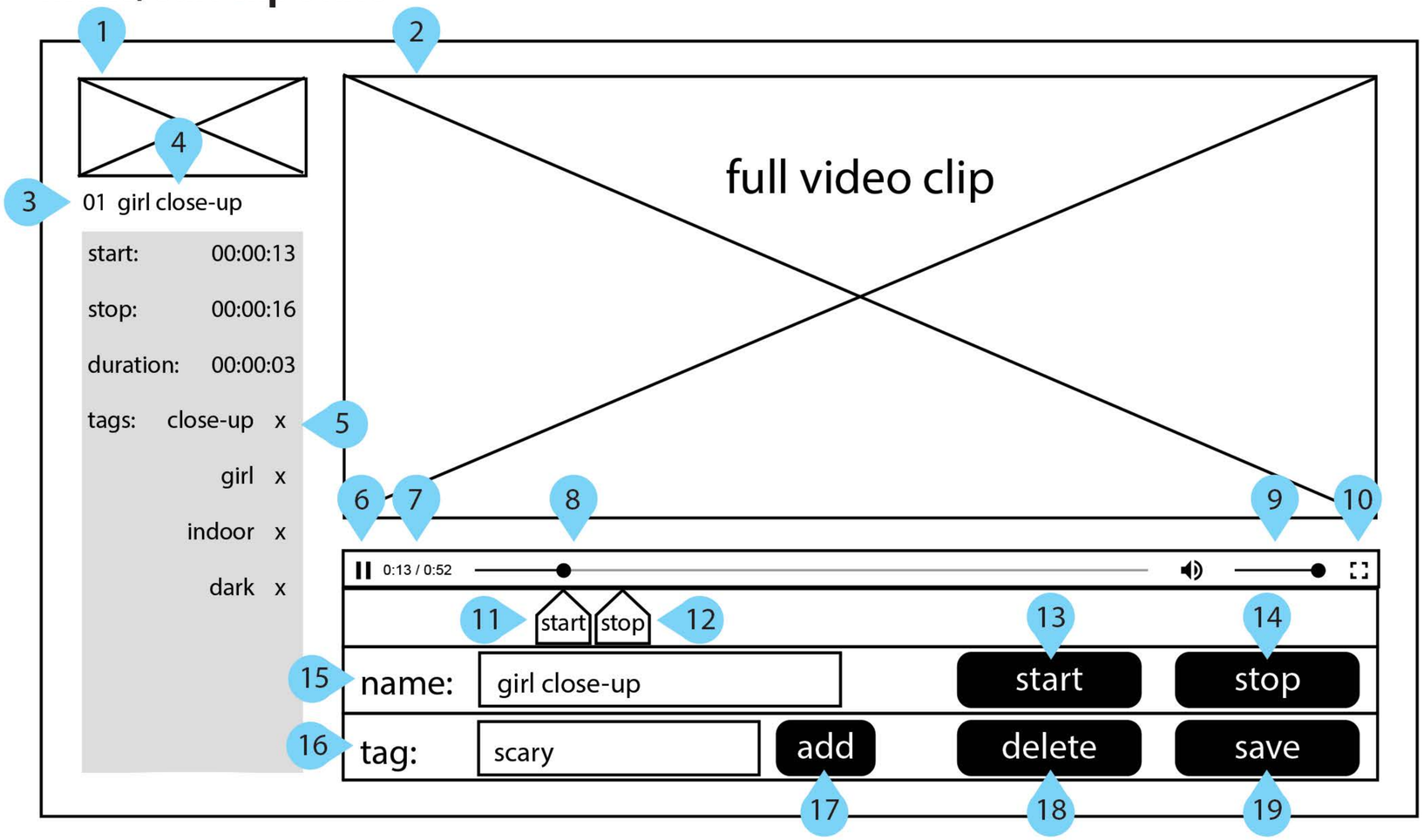
12 make clip button
- CLICK/TAP here initiates the make/edit clip state

- 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)

make/edit clip state



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

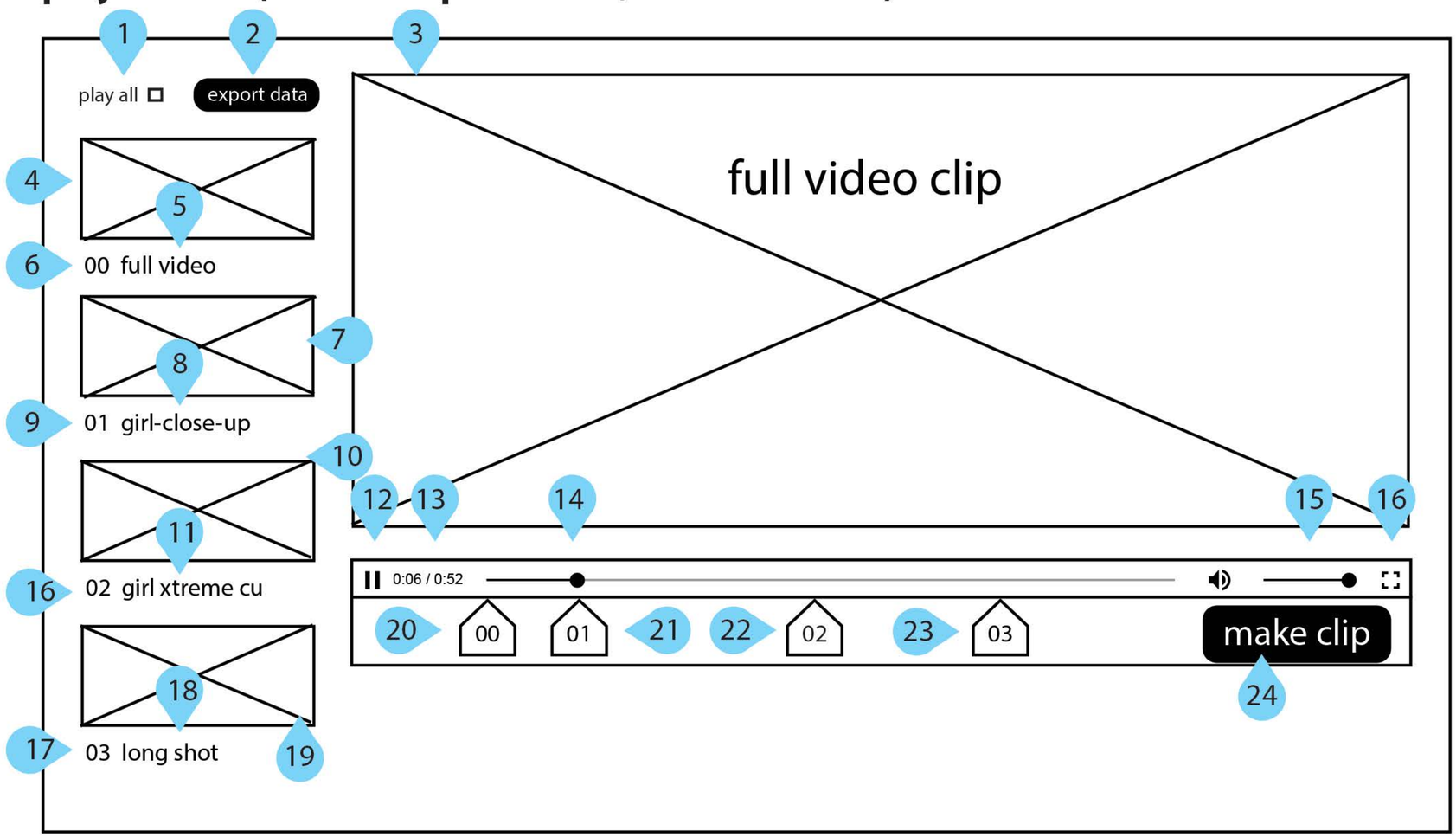
17 ''add tag' button

18 delete' clip button

19 'save' clip button

- 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).

player state (several clips created, none selected)



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

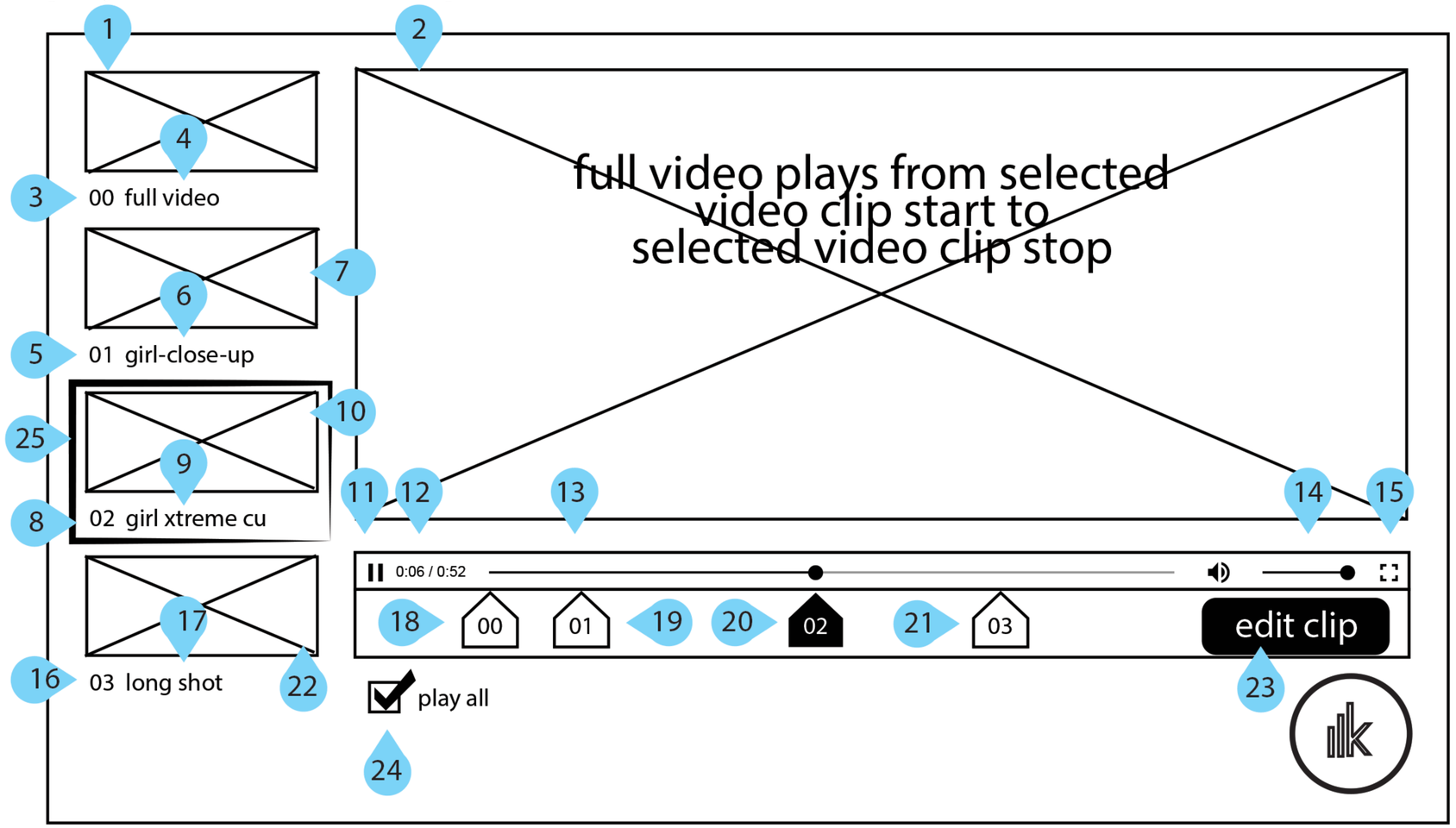
16 full screen button

20,21,22,23 clip start markers

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

- 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

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

18,19,200,21 clip start markers

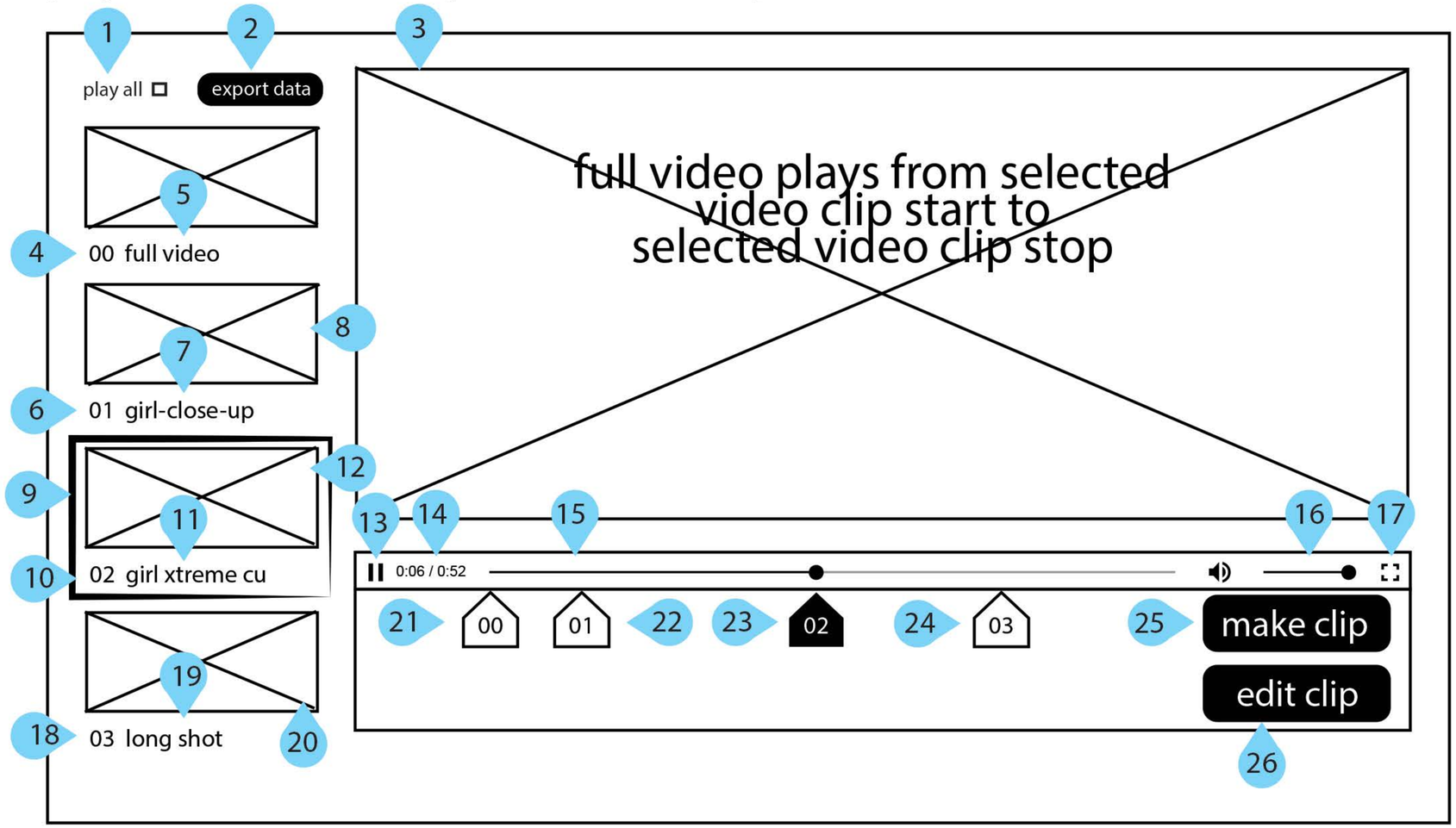
20 marker of selected video clip is in 'selected' state

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)



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

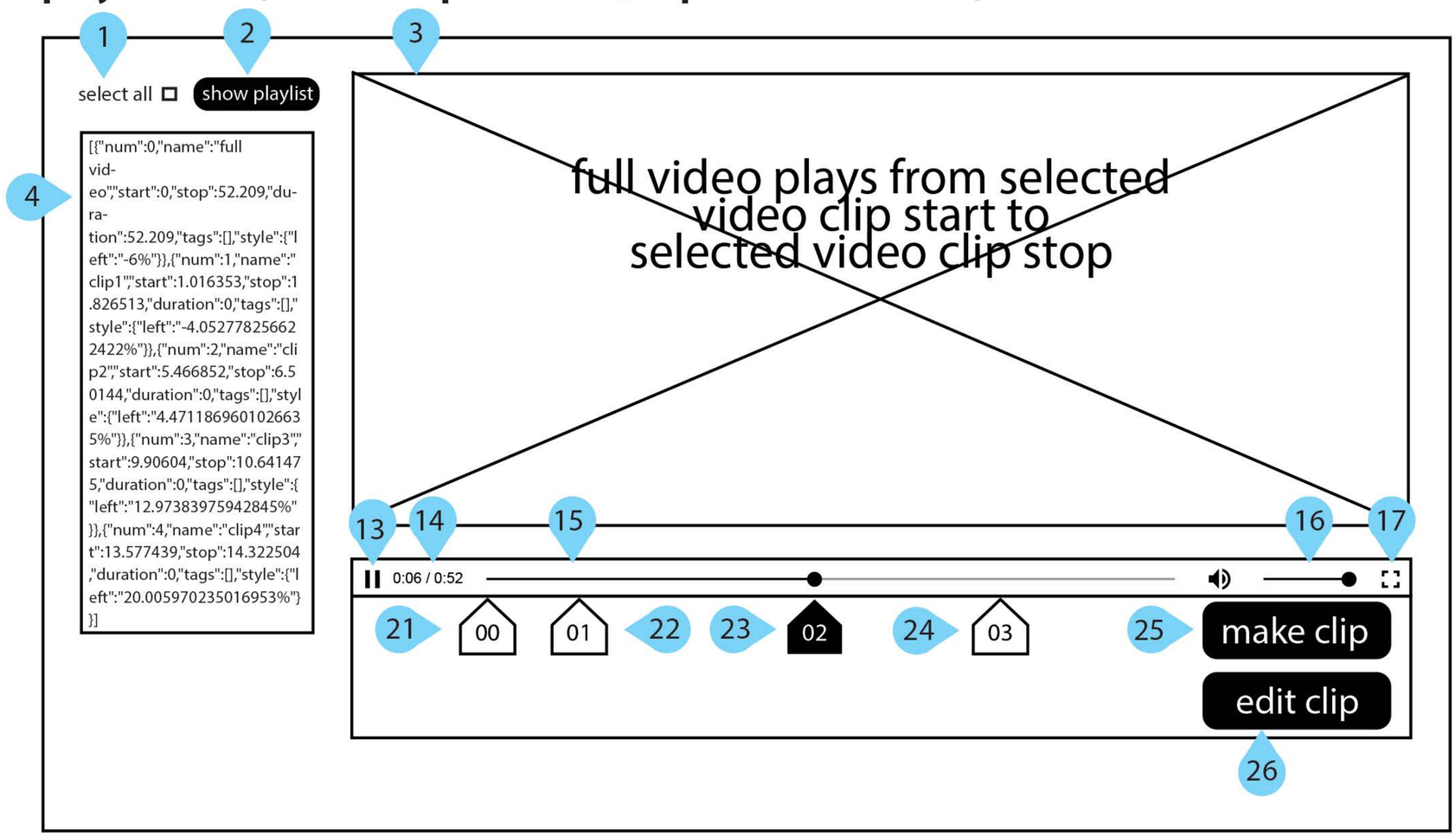
25 'make clip' button; CLICK/TAP to make a new video clip

26 'edit clip' button; CLICK/TAP to edit selected video clip

9 selected video clip indicator

- 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

player state (several clips created, export data clicked)



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

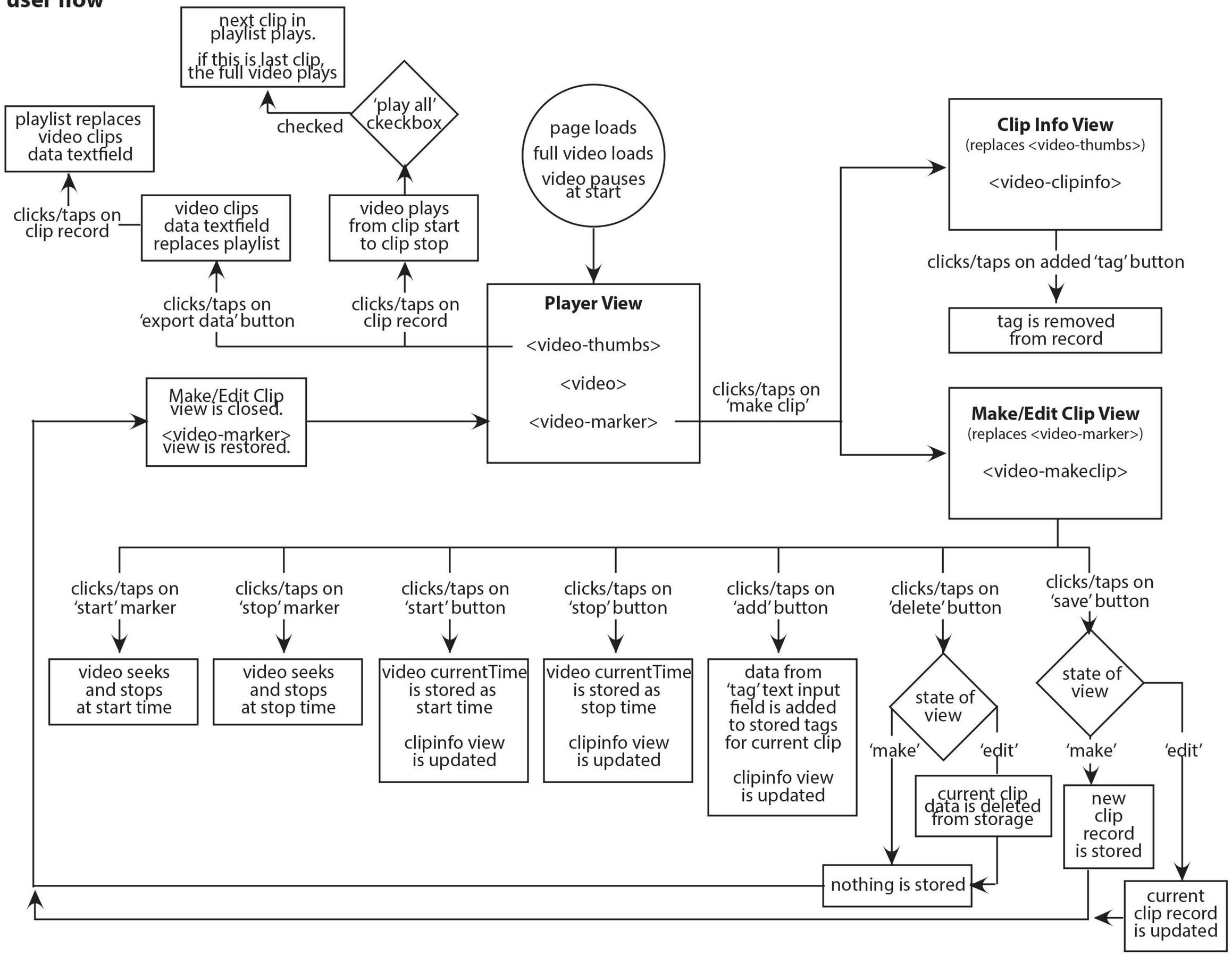
25 'make clip' button; CLICK/TAP to make a new video clip

26 'edit clip' button; CLICK/TAP to edit selected video clip

- 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

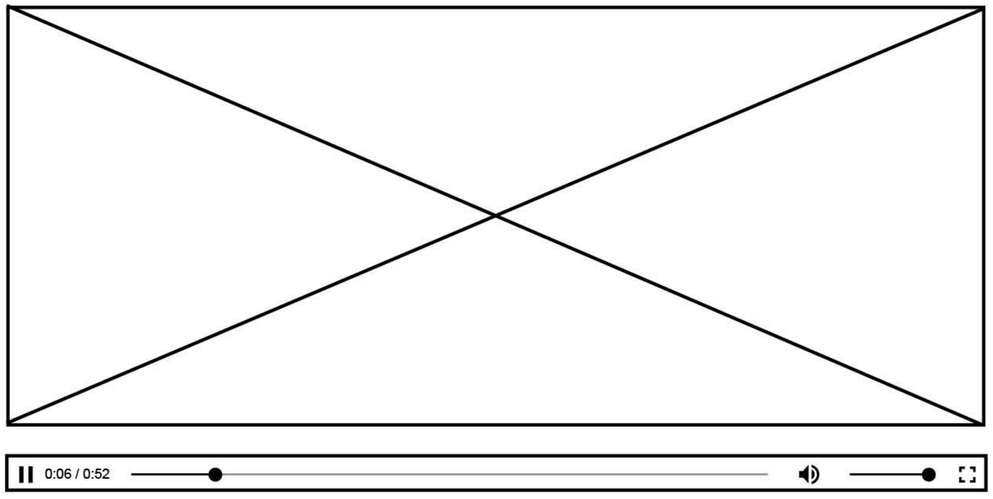
Software Architecture

user flow


next clip in playlist plays.
if this is last clip, the full video plays
checked
'play all' ckeckbox
playlist replaces video clips data textfield
clicks/taps on clip record
video clips data textfield replaces playlist
video plays from clip start to clip stop
clicks/taps on 'export data' button
clicks/taps on clip record
page loads
full video loads
video pauses at start
Player View
<video-thumbs>
<video>
<video-marker>
Make/Edit Clip view is closed.
<video-marker> view is restored.
clicks/taps on 'make clip'
Clip Info View
(replaces <video-thumbs>)
<video-clipinfo>
clicks/taps on added 'tag' button
tag is removed from record
Make/Edit Clip View
(replaces <video-marker>)
<video-makeclip>
clicks/taps on 'start' marker
clicks/taps on 'stop' marker
clicks/taps on 'start' button
clicks/taps on 'stop' button
clicks/taps on 'add' button
clicks/taps on 'delete' button
clicks/taps on 'save' button
video seeks and stops at start time
video seeks and stops at stop time
video currentTime is stored as start time
clipinfo view is updated
video currentTime is stored as stop time
clipinfo view is updated
data from 'tag' text input field is added to stored tags for current clip
clipinfo view is updated
state of view
'make'
'edit'
current clip data is deleted from storage
state of view
'make'
'edit'
new clip record is stored
nothing is stored
current clip record is updated

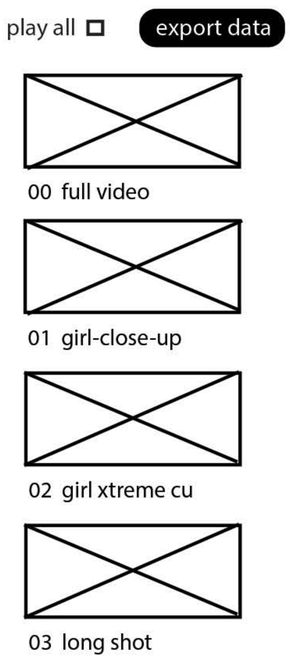
HTML5 native video player

<video></video>



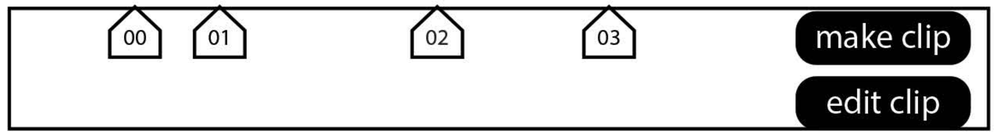
Angular Directives

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

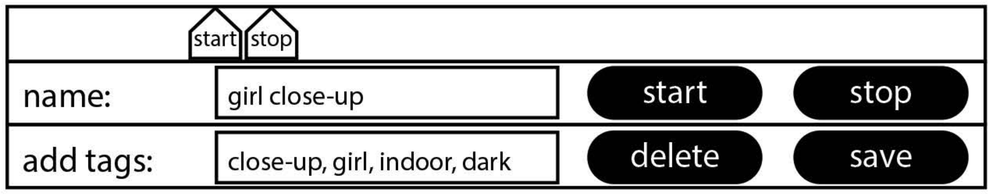


<video-clipinfo></video-clipinfo>
video-clipinfo.html

<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

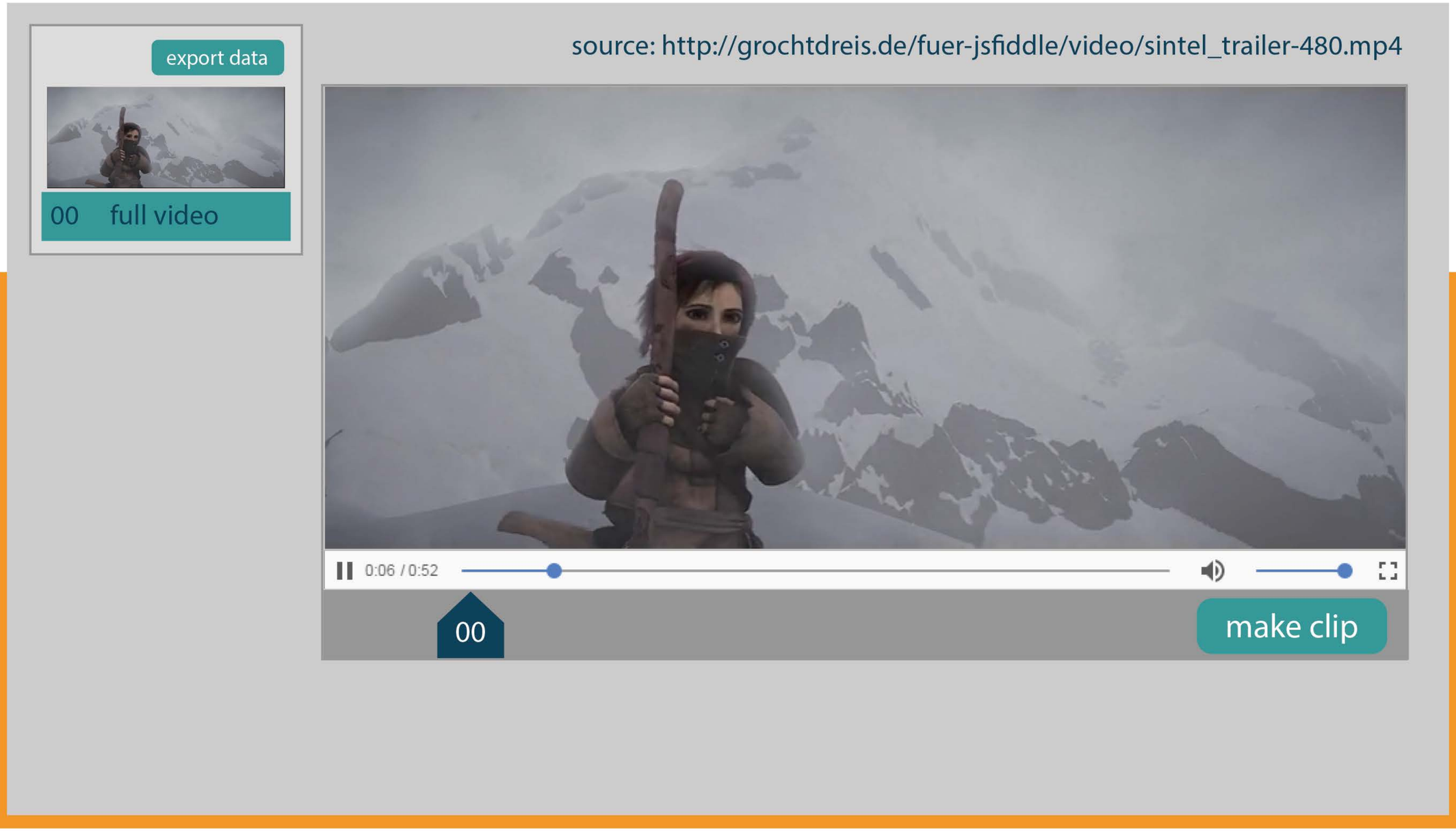
```
return {
  restrict: 'E',
  templateUrl: "video-thumbs.html",
  controller:
   ['$scope','$rootScope','videoInfo', function($scope,$rootScope,videoInfo) {
     var thumbs = this;
     thumbs.clips = videoInfo.clips;
     thumbs.buttoncopy = videoInfo.videoThumbs.buttoncopy;
     thumbs.showData =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

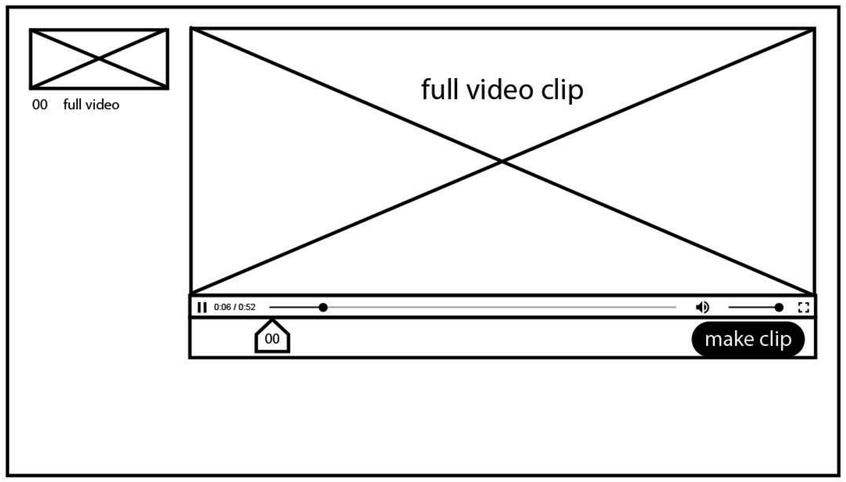
videoMakeclip

```
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)

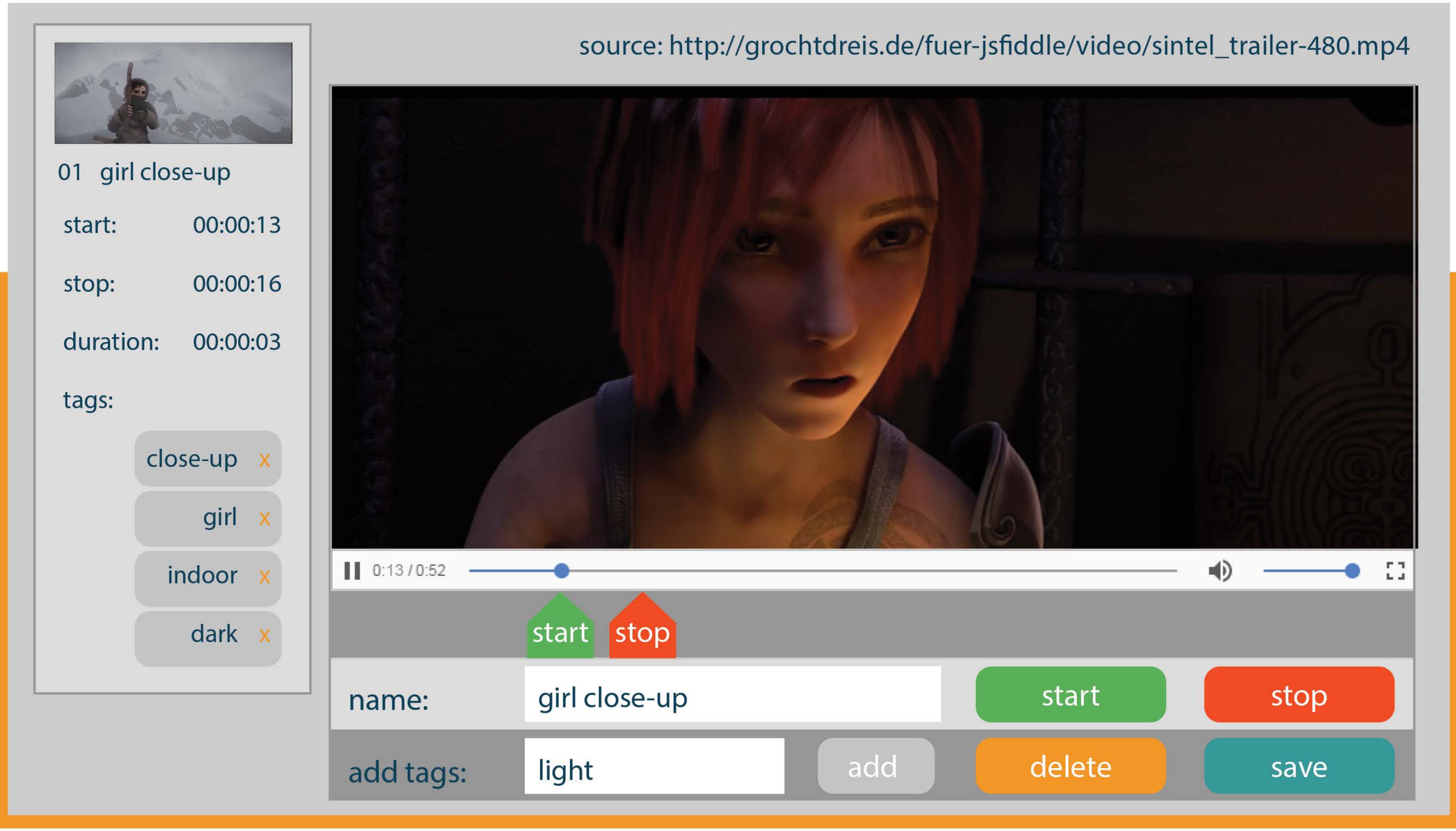


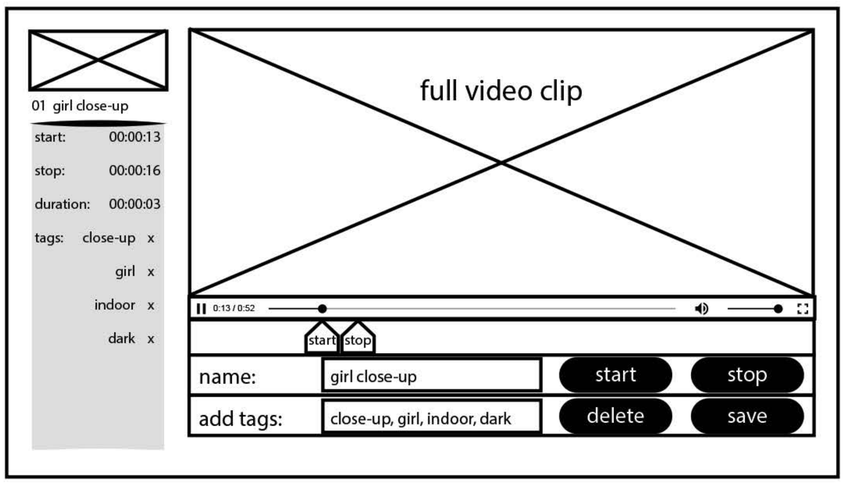


#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

Font Arial 16pt #0d425b

make/edit clip state

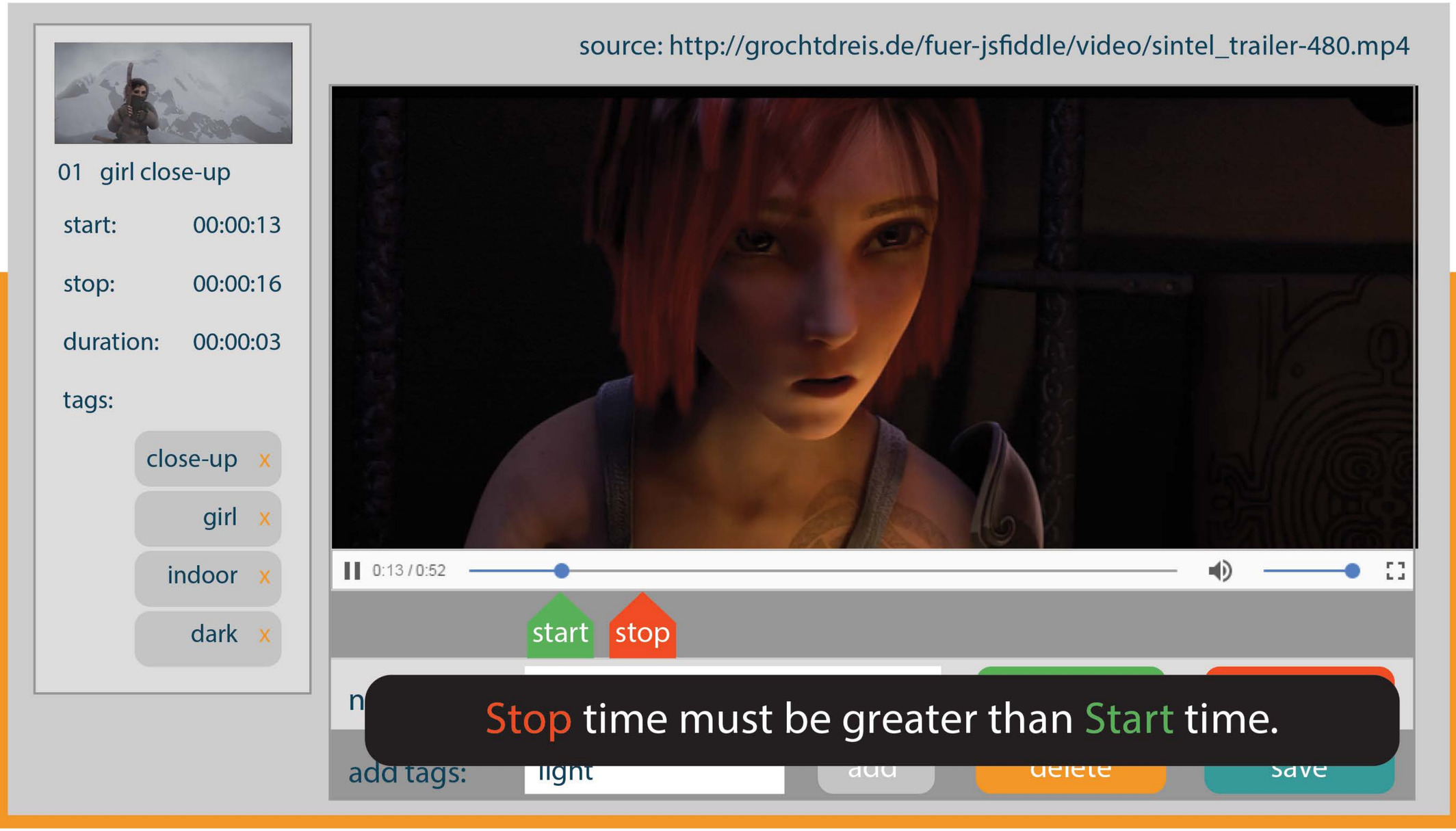


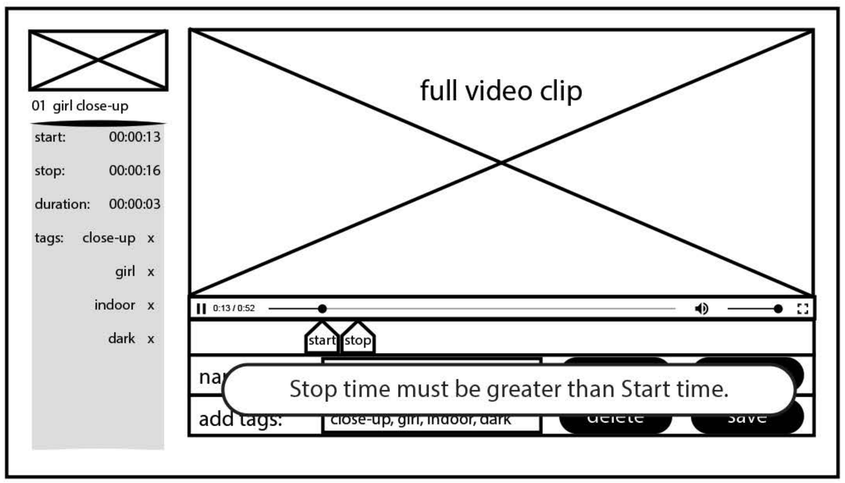


#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

Font Arial 16pt #0d425b

make/edit clip state error message

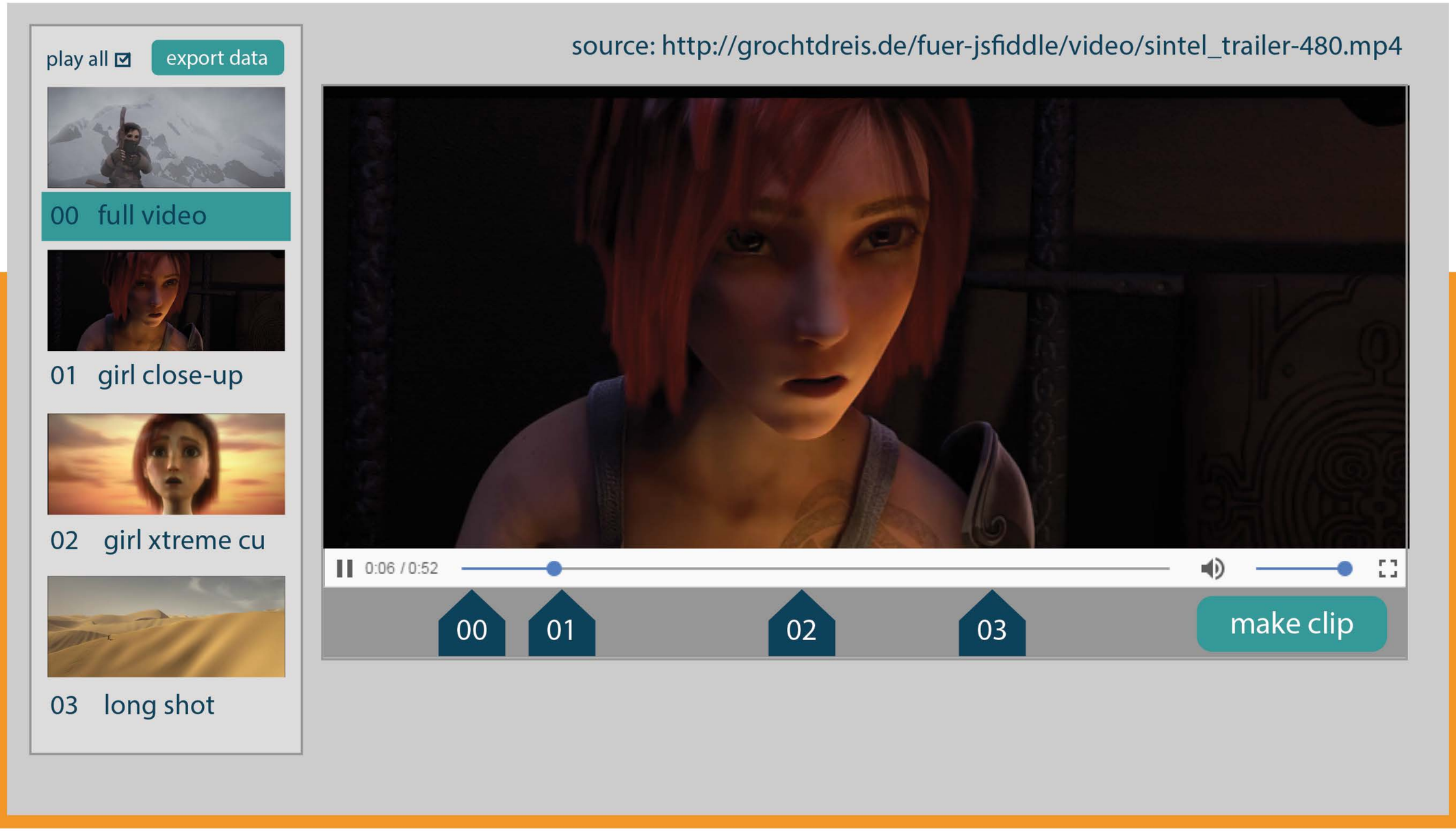


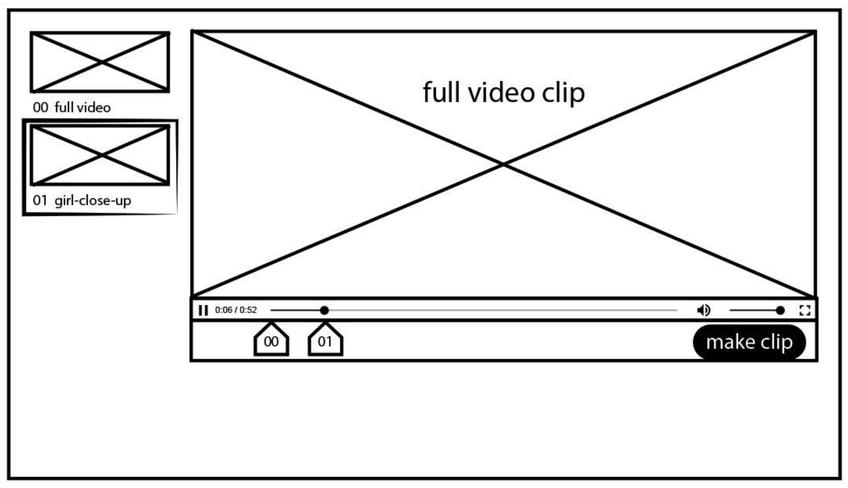


#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

Font Arial 16pt #0d425b

player state (several clips created, full video selected)

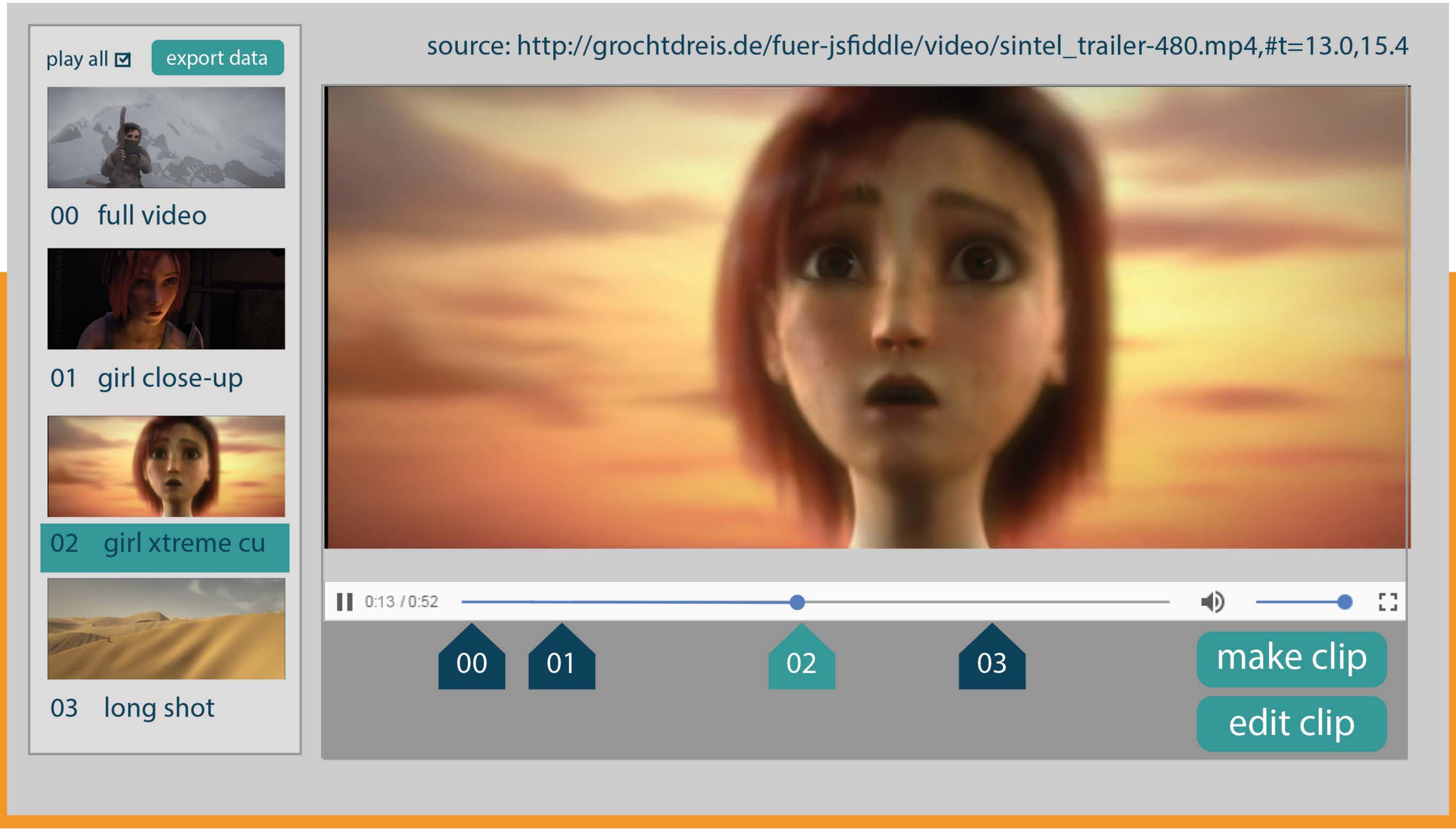


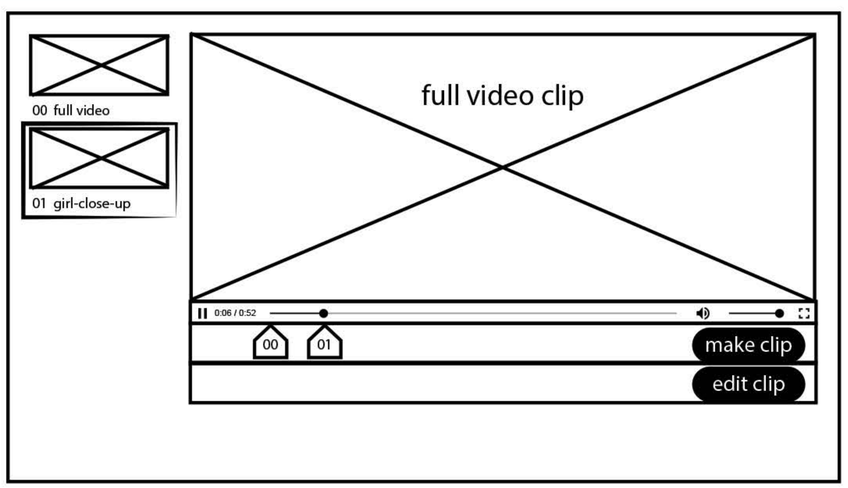


#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

Font Arial 16pt #0d425b

player state (several clips created, one selected)





#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

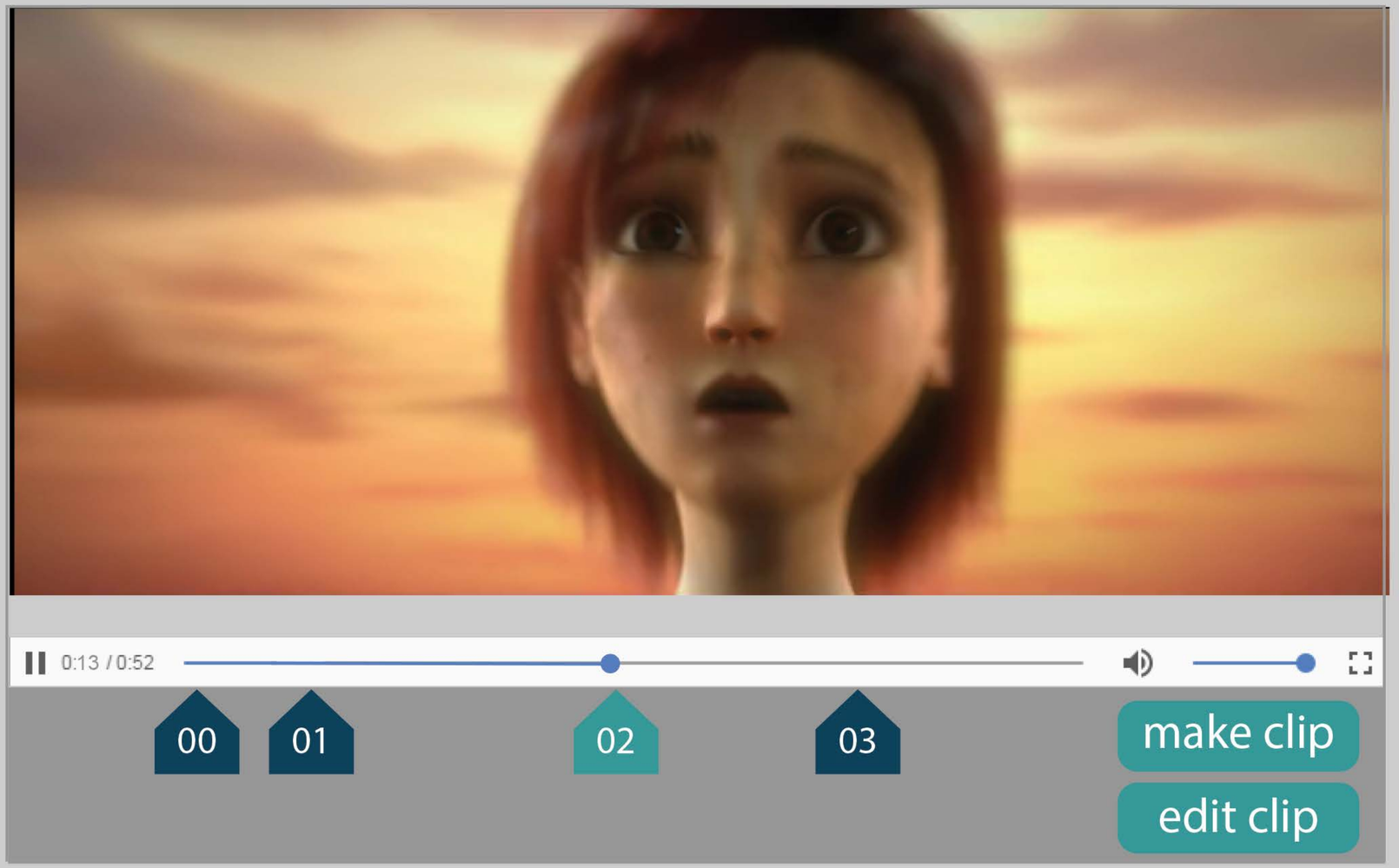
Font Arial 16pt #0d425b

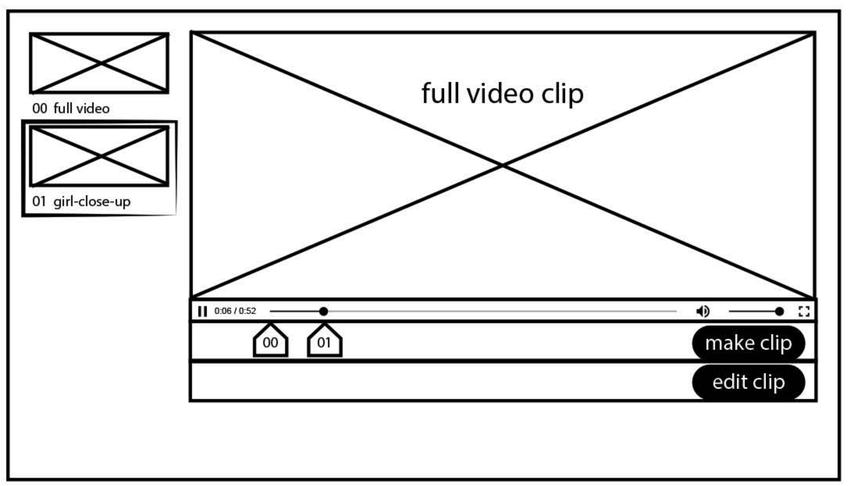
player state (export data button clicked)

select all ☑ show playlist

[{"num":0,"name":"full video","start":0,"stop":52.209,"duration":52.209,"tags":[],"style":{"left":"-6%"}},{"num":1,"name":"clip1","start":1.016353,"stop":1.826513,"duration":0,"tags":[],"style":{"left":"-4.052778256622422%"}},{"num":2,"name":"clip2","start":5.466852,"stop":6.50144,"duration":0,"tags":[],"style":{"left":"4.4711869601026635%"}},{"num":3,"name":"clip3","start":9.90604,"stop":10.641475,"duration":0,"tags":[],"style":{"left":"12.97383975942845%"}},{"num":4,"name":"clip4","start":13.577439,"stop":14.322504,"duration":0,"tags":[],"style":{"left":"20.005970235016953%"}}]

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





#ffffff #dddcdb #969696 #ef4a24 #f29625 #58b058 #349898 #0d425b

Font Arial 16pt #0d425b