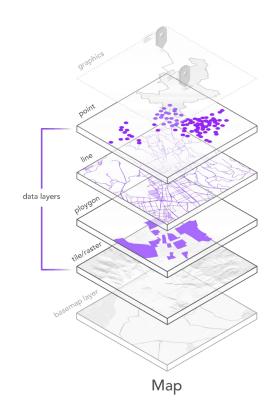
ArcGIS JS - Lab1

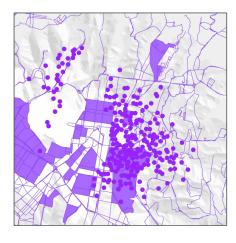
— Hệ thống thông tin địa lý 3 chiều ——

Introduction

ArcGis

- Map
 - Layer
 - basemap
- View
 - Display
 - User interaction
 - Popup
 - Widget
 - Location





Map view

Base HTML

```
<html>
  <head>
   <meta charset="utf-8" />
    <meta name="viewport" content="initial-scale=1, maximum-scale=1, user-scalable=no" />
    <title>ArcGIS Maps SDK for JavaScript Tutorials: Display a map</title>
   <style>
     html,
     body,
     #viewDiv {
       padding: 0;
       margin: 0;
       height: 100%;
       width: 100%;
   </style>
  </head>
  <body>
   <div id="viewDiv"></div>
  </body>
</html>
```

<head> tag

```
<style>
 html,
 body,
  #viewDiv {
   padding: 0;
   margin: 0;
   height: 100%;
   width: 100%;
</style>
<link rel="stylesheet" href="https://js.arcgis.com/4.29/esri/themes/light/main.css">
<script src="https://js.arcgis.com/4.29/"></script>
```

<head> tag

```
<script>
 require(["esri/Map", "esri/views/MapView"], (Map, MapView) => {
   const map = new Map({
     basemap: "topo-vector"
   });
   const view = new MapView({
     container: "viewDiv",
     map: map,
     zoom: 4,
     center: [15, 65] // longitude, latitude
   });
 });
</script>
```

Introduction 2D map view

```
codepen.io/vu-pt/pen/xxazVVa?editors=1000
 IE402-Intro to MapView - Create a 2D map
// HTML
         require(["esri/Map", "esri/views/MapView"], (Map, MapView) => {
           const map = new Map({
           const view = new MapView({
             container: "viewDiv",
             map: map,
             zoom: 4,
             center: [15, 65] // longitude, latitude
     Arctic
                                                                            GREENLAND
```

Basemap

<u>Reference</u>

Value	Source
satellite	World Imagery
hybrid	Hybrid Reference Layer and World Imagery.
oceans	World Ocean Reference and World Ocean Base
osm	<u>OpenStreetMapLayer</u>
terrain	World Reference Overlay and World Terrain Base
dark-gray / dark-gray-vector	Dark Gray Canvas
gray / gray-vector	Light Gray Canvas
streets / streets-vector	World Street Map
streets-night-vector	World Street Map (Night)
streets-navigation-vector	World Navigation Map
topo / topo-vector	World Hillshade and World Topographic Map
streets-relief-vector	World Hillshade and World Street Map (with Relief)

Location on 2D map

Location sample

```
E402-Get location on map

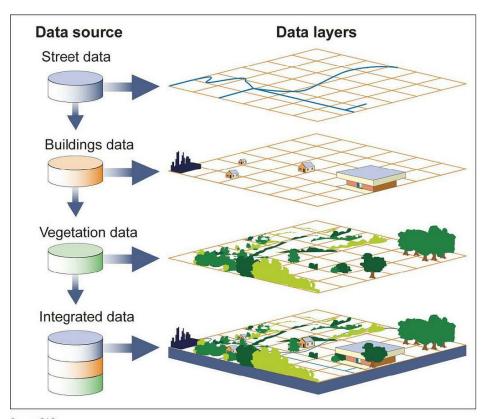
VU-pt ← Follow
    M HTML
            ], function(Map, MapView) {
              map = new Map({
              var view = new MapView({
                container: "viewDiv",
                map: map,
                center: [106.80196068432218, 10.870525057480787],
                zoom: 16
              view.on("click", function(event) { // Listen for the click event
                view.hitTest(event).then(function(hitTestResults) { // Search for features where the user clicked
                  if (hitTestResults.results) {
                    list_points.push([event.mapPoint.longitude, event.mapPoint.latitude]);
                    string points += "[" + event.mapPoint.longitude + ", " + event.mapPoint.latitude + "],"
                    copyTextToClipboard(string_points.slice(0, -1));
                                                                                                                                 Trường Đại
Học Quốc Tế
                                                                                                                                     Trường Đại Học
Khoa Học Xã Hội
```

Coordinates



Layer

```
var graphicsLayer = new GraphicsLayer();
jsondata.points.forEach(function(data){
   graphicsLayer.add(createGraphic(data));
});
jsondata.lines.forEach(function(data){
   graphicsLayer.add(createGraphic(data));
});
jsondata.polygons.forEach(function(data){
   graphicsLayer.add(createGraphic(data));
});
map.add(graphicsLayer);
```

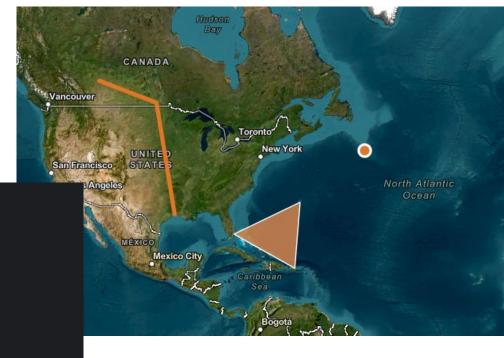


Source: GAO.

Graphics

Graphic object

```
require([
  "esri/Map",
  "esri/views/MapView",
  "esri/Graphic",
  "esri/layers/GraphicsLayer"
], function(Map, MapView, Graphic, GraphicsLayer) {
var map = new Map({
basemap: "topo-vector"
});
 map.on("load", function(){
      map.graphics.enableMouseEvents();
    });
```



Graphic object + JS

Customized JS



Picture marker

```
const simpleMarkerSymbol = {
    type: "picture-marker",
    url: "base64 image",
    width: "48px",
    height: "48px"
};
https://www.base64-image.de/
https://www.remove.bg/
```

References

- 2D map Introduction
- 2D sample code
- Graphic object 2D sample