

Online modelovanie a prezeranie 3D objektov

Milan Halabuk

školiťel: Mgr. David Běhal

Cieľ práce

- Vytvorenie **užívateľsky príjemného** online modelárskeho nástroja s následným **zdielaním** vytvoreného **3D obsahu**
- Intuitívne ovládanie
- Dostupnosť z ktoréhokoľvek miesta
- **Multiplatformová** kompatibilita
- Cieľovou skupinou by mali byť **laici**, ktorí nemajú **žiadne** alebo majú minimálne **znalosti** z **počítačovej grafiky**

Analýza problematiky

- Problém zobrazovania 3D počítačovej grafiky na internete
- **WebGL** a jeho konkurenti (JOGL, JAVA3D, FLASH, WRML,...)
- Iné podobné projekty (insparia.com – JOGL, ogelo3D – WebGL,...)
- Súčasné trendy pri tvorbe webových aplikácií (WEB 2.0, AJAX, HTML5)

Špecifikácia

- Použité technológie (PHP, HTML, JavaScript (WebGL), CSS, MySQL)
- Klient-server architektúra
- Požiadavky na užívateľskú časť (klient)
- Požiadavky na servrovú časť (server)
- Vstupné a výstupné dáta

Návrh Riešenia

- Servrová časť – **Objektové PHP** (Model-View-Controller)
 - komunikácia s databázou
 - generuje dáta pre javaskriptovú klienskú časť
 - generuje samotné HTML
- Klientská časť – **JavaScript (Jquery)+HTML**
 - obsluha **WebGL** funkcií
 - Ajax (načítavanie a posielanie dát na pozadí)

Implementácia 1

Portál - katalóg

meshmatrix.com

CATALOG

MODELER

HELP

Name

.....

Login

Registration

ALL MODELS

Big Things

Buildings

Furniture

Gadgets

Shapes

Small Things

Unclassified

Latest Models



1 2 3



Antik building 2

Added: 30. 5. 2010

Category: Unclassified

Description:
temple of xz god

[View 3D model!](#)



Everything 2

Added: 30. 5. 2010

Category: Small Things

Description:
objects in space

[View 3D model!](#)



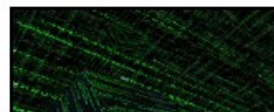
dom

Added: 30. 5. 2010

Category: Buildings

Description:
jednoduchy dom

[View 3D model!](#)



roof

Added: 30. 5. 2010

Implementácia 2

Viewer

← → ↻ ☆ http://localhost/Models/Unclassified/Antik_building_2035747200_1275238323

meshmatrix.com

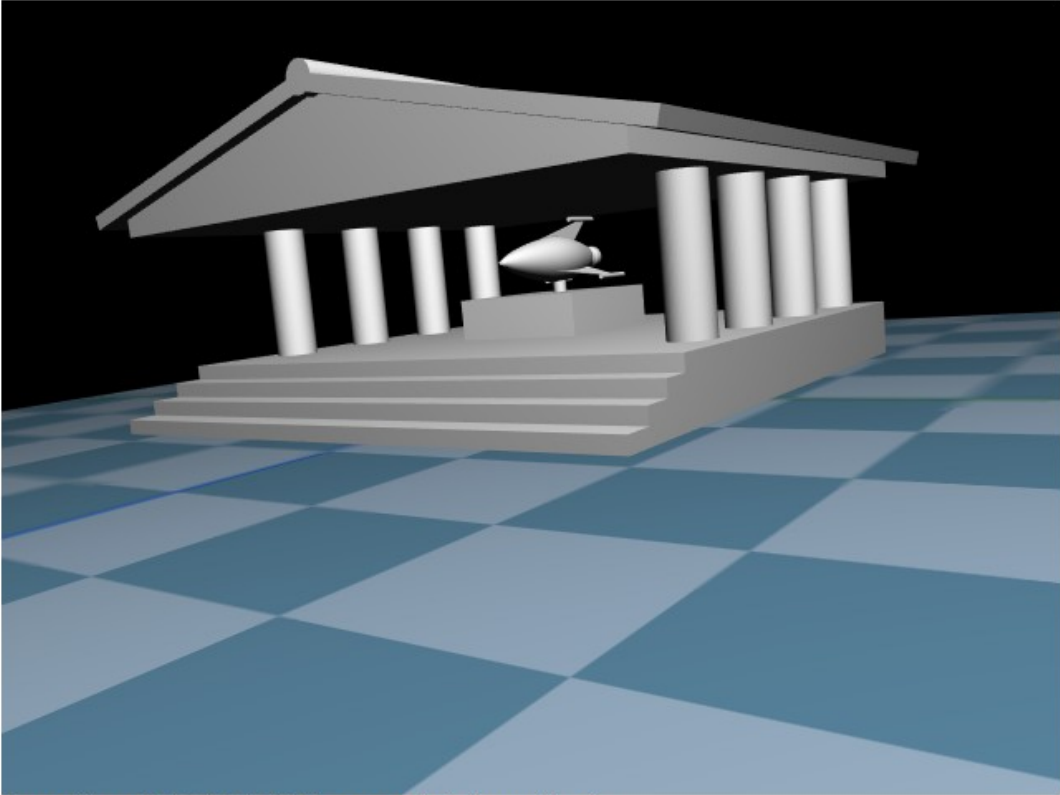
CATALOG MODELER HELP

Name Login Registration


ALL MODELS

- Big Things
- Buildings
- Furniture
- Gadgets
- Shapes
- Small Things
- Unclassified

Antik building 2



Camera distance: 7.106813301301215 (press + or - key to change distance)

 **Description:**

Implementácia 3

Login/Logout/Registrácia

meshmatrix.com

CATALOG MODELER HELP

Name Login Registration

ALL MODELS

- Big Things
- Buildings
- Furniture
- Gadgets
- Shapes
- Small Things
- Unclassified

Registration

Please fill out the following information. All are required.

Passwords do not match

Emails do not match

Incorrect email

Login:

Password:

Retype Password:

Email:

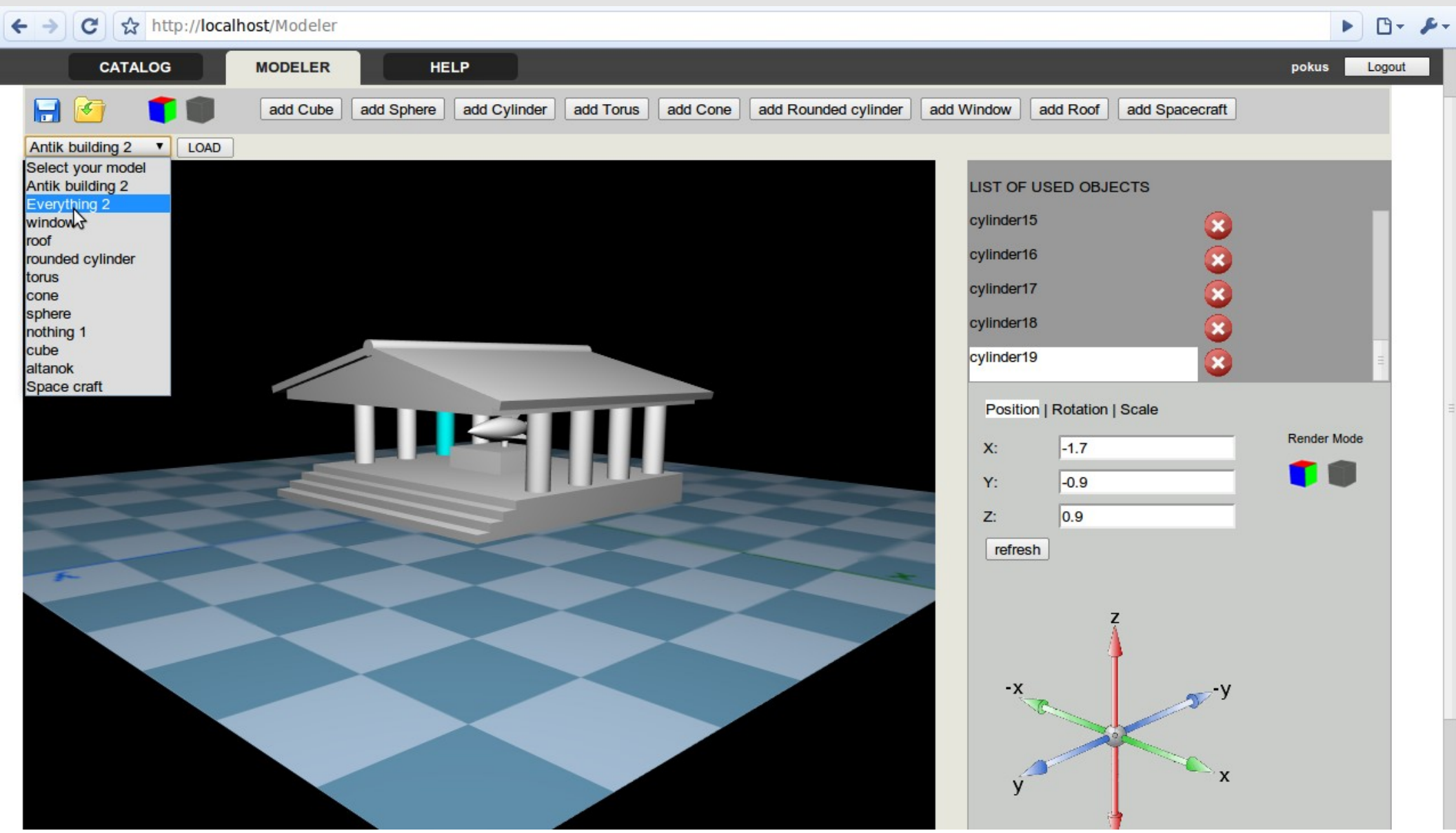
Retype Email:

About me:

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Implementácia 4

Modeler 1 – (Načítavanie projektu a Posun Objektov)



Implementácia 5

Modeler 2 – (Ukladanie projektu a Rotácia)

The screenshot displays the Modeler 2 web application interface. The browser address bar shows `http://localhost/Modeler`. The application has three main tabs: **CATALOG**, **MODELER** (active), and **HELP**. The **MODELER** tab contains a toolbar with buttons for adding various shapes: `add Cube`, `add Sphere`, `add Cylinder`, `add Torus`, `add Cone`, `add Rounded cylinder`, `add Window`, `add Roof`, and `add Spacecraft`. Below the toolbar, there are file management options: `SAVE AS NEW FILE` and `OVERWRITE OLD SAVE`. The main 3D view shows a temple model on a checkered floor. A dropdown menu is open, showing categories: `Select category`, `Big Things`, `Buildings` (highlighted), `Furniture`, `Gadgets`, `Shapes`, `Small Things`, and `Unclassified`. The right sidebar contains a **LIST OF USED OBJECTS** panel with a scrollable list of objects: `cube0`, `cube1`, `cube2`, `cube3`, and `cylinder4`, each with a red 'X' icon. Below this is a **Position | Rotation | Scale** panel with input fields for X (0), Y (0), and Z (-45), and a `refresh` button. The **Render Mode** section shows two icons: a colored cube and a gray cube. At the bottom of the sidebar is a 3D coordinate system with X, Y, and Z axes and rotation handles.

Implementácia 6

Modeler 3 – (Škálovanie, Renderovací mód)

The screenshot displays the Modeler 3 web application interface. The browser address bar shows `http://localhost/Modeler`. The application has three main tabs: **CATALOG**, **MODELER** (active), and **HELP**. The **MODELER** tab contains a toolbar with buttons for adding various shapes: `add Cube`, `add Sphere`, `add Cylinder`, `add Torus`, `add Cone`, `add Rounded cylinder`, `add Window`, `add Roof`, and `add Spacecraft`. Below the toolbar, there are file management options: `Antik building 2`, `temple of xz god`, `Unclassified` (dropdown), `SAVE AS NEW FILE`, and `OVERWRITE OLD SAVE`. The main 3D view shows a classical building with a wireframe dome on a checkered floor. The right sidebar contains a **LIST OF USED OBJECTS** table and a **Position | Rotation | Scale** control panel. The **Scale** panel has input fields for X (5), Y (3), and Z (4.05), a `refresh` button, and a **Render Mode** selector with two cube icons. A 3D coordinate system with X, Y, and Z axes is shown at the bottom of the sidebar.

| Object Name | Action |
|--------------|----------------------------------|
| cube10 | <input type="button" value="X"/> |
| cube11 | <input type="button" value="X"/> |
| cylinder12 | <input type="button" value="X"/> |
| cube13 | <input type="button" value="X"/> |
| spacecraft14 | <input type="button" value="X"/> |

Position | Rotation | Scale

X:

Y:

Z:

Render Mode

Čo plánujem dorobiť alebo vylepšiť v budúcnosti

- Zjednocovanie objektov
- Export/import z niektorých otvorených formátov
- Rozšíriť ponuku predvolených objektov
- Vylepšiť užívateľské rozhranie

Ďakujem za pozornosť