JEEVES CAMPUS - STUDENT ACCESS GUIDE

ZFT Hyderabad × IIT Madras AI/ML Workshop

Server: 31.97.61.216

PAGE 1: GETTING STARTED

YOUR LOGIN CREDENTIALS

- **Username:** [Your assigned username - jc_xxxxx]
- **Password:** Pass@2025

⚠ **IMPORTANT:** Password is case-sensitive!

HOW TO BEGIN (2 Simple Steps)

Step 1: Login to JupyterHub - Open browser: `http://31.97.61.216:32000` - Enter your username and password - You'll see your Jupyter workspace

Step 2: Start Learning - Open Student Dashboard: `http://31.97.61.216:32010` - Or start with a notebook in JupyterHub

MAIN LEARNING PLATFORMS

STUDENT DASHBOARD (Learning Portal)

URL: `http://31.97.61.216:32010`

What You'll Find: - ✓ Course navigation on the left - ✓ Interactive coding exercises in the center - ✓ Real-time pipeline visualization on the right (Glass Wall View) - ✓ Your progress tracking - ✓ Achievement badges - ✓ Hint system when you're stuck - ✓ AI feedback on your code

Use this for: Guided learning with structured courses

JUPYTERHUB (Your Coding Workspace)

URL: `http://31.97.61.216:32000`

What You'll Find: - Your personal Jupyter notebook environment - Write and run Python code - Access to H2O3, H2OGPT, and all campus services - Your saved work and files

Use this for: Free-form coding, projects, experiments

PAGE 2: WORKING IN JUPYTERHUB

YOUR JUPYTERHUB WORKSPACE

When you login to JupyterHub (`http://31.97.61.216:32000`), you get:

Your Personal Directory:

```
/home/jovyan/work/
├── notebooks/    (Your Jupyter notebooks)
├── data/         (Your datasets)
├── models/       (Your saved models)
└── logs/         (Execution logs)
```

Shared Resources (read-only):

```
/home/jovyan/shared/
└── sample_data.csv  (Example datasets)

/home/jovyan/templates/
├── 01_H2O3_Introduction.ipynb
├── 02_Data_Cleaning.ipynb
├── 03_Feature_Engineering.ipynb
└── ... (More tutorial notebooks)
```

CONNECTING TO H2O3 FROM JUPYTERHUB

This is already configured for you! Just use this code in any notebook:

```python
import h2o

# Connect to H2O3 cluster (already running for you)
h2o.init(url='http://campus_h2o3:54321')

# That's it! You're connected.
print("✓ Connected to H2O3!")

# Now you can use H2O3
df = h2o.import_file('/home/jovyan/shared/sample_data.csv')
print(df.describe())
```

Key point: Use `http://campus_h2o3:54321` - this is the internal address that works from JupyterHub.

ACCESSING H2O3 FLOW WEB UI

You have TWO ways to use H2O3:

Option 1: Via Code in JupyterHub (Recommended for Learning)

```
import h2o
h2o.init(url='http://campus_h2o3:54321')

# All H2O3 functions available
df = h2o.import_file('data.csv')
# ... your ML code ...
```

Option 2: Via Web Interface (For Visual ML)

- Open in new tab: `http://31.97.61.216:32001`
- This gives you visual, no-code ML workflows
- Great for exploring and comparing models

Both connect to the same H2O3 cluster! Your work in JupyterHub notebooks will show up in the web UI and vice versa.

USING H2OGPT AI ASSISTANT

From Your Browser: - Open: `http://31.97.61.216:32002` - Ask any question about your code

From JupyterHub Notebook:

```
import requests

# Ask H2OGPT a question
question = "How do I handle missing values in H2O3?"
response = requests.post(
    "http://campus_h2ogpt:7860/api/ask",
    json={"question": question}
)
print(response.json()['answer'])
```

Example Questions: - “How do I load a CSV file in H2O3?” - “Explain gradient boosting in simple terms” - “I’m getting this error: [paste error], what does it mean?” - “What’s the best way to handle missing data?”

PAGE 3: COMPLETE EXAMPLE WORKFLOW

EXAMPLE: Training Your First ML Model

Step 1: Login to JupyterHub

`http://31.97.61.216:32000`

Step 2: Create New Notebook - Click “New” → “Python 3” - Name it: `my_first_model.ipynb`

Step 3: Write and Run This Code

```
# Import libraries
import h2o
from h2o.estimators import H2OGradientBoostingEstimator

# Connect to H2O3
```

```
        h2o.init(url='http://campus_h2o3:54321')
        print("✓ Connected to H2O3")

        # Load sample data
        df = h2o.import_file('/home/jovyan/shared/sample_data.csv')
        print(f"✓ Loaded {df.nrow} rows, {df.ncol} columns")

        # Basic data exploration
        print(df.describe())
        print(df.head())

        # Split data for training
        train, valid, test = df.split_frame([0.7, 0.15])
        print(f"✓ Train: {train.nrow}, Valid: {valid.nrow}, Test:
{test.nrow}")

        # Define features and target
        features = df.columns[:-1]  # All columns except last
        target = df.columns[-1]     # Last column

        # Train a model
        gbm = H2OGradientBoostingEstimator(
            ntrees=50,
            max_depth=5,
            learn_rate=0.1
        )

        gbm.train(
            x=features,
            y=target,
            training_frame=train,
            validation_frame=valid
        )

        print("✓ Model trained!")
        print(f"Training RMSE: {gbm.rmse(train=True)}")
        print(f"Validation RMSE: {gbm.rmse(valid=True)}")

        # Make predictions
        predictions = gbm.predict(test)
        print("✓ Predictions made!")
        print(predictions.head())

        # Save model
        model_path =
gbm.save_mojo('/home/jovyan/work/models/my_first_model')
        print(f"✓ Model saved to: {model_path}")
```

Step 4: Watch in Glass Wall Dashboard - Open in another tab: `http://31.97.61.216:32010` - You'll see your pipeline executing in real-time!

Step 5: View in H2O3 Flow (Optional) - Open: `http://31.97.61.216:32001` - See your model in the visual interface

🎯 GLASS WALL VIEW EXPLAINED

While your code runs, the **Glass Wall View** (right sidebar of Student Dashboard) shows:

1. **Data Ingestion** - Loading your CSV file
2. **Data Cleaning** - Handling missing values
3. **Feature Engineering** - Creating variables
4. **Model Training** - Building the GBM model
5. **Model Evaluation** - Testing performance

This helps you understand what's happening "inside the black box" of ML!

PAGE 4: TIPS & REFERENCE

IMPORTANT TIPS

✓ **DO:** - Always start by connecting to H2O3: `h2o.init(url='http://campus_h2o3:54321')` - Save your work frequently in JupyterHub - Use the Student Dashboard for guided learning - Use JupyterHub for open exploration - Ask H2OGPT when stuck - Watch the Glass Wall view to learn how ML works

✗ **DON'T:** - Don't use `h2o.init()` without the URL parameter - Don't try to install H2O3 locally (it's already running for you) - Don't use external ports (32001) in your notebook code - use internal addresses - Shared resources at `/shared/` are read-only - save your work to `/work/`

SERVICE ADDRESSES

Use in Browser (external access): | Service | Browser URL | |———|———-| | JupyterHub | `http://31.97.61.216:32000` | | H2O3 Flow UI | `http://31.97.61.216:32001` | | H2OGPT Chat | `http://31.97.61.216:32002` | | Student Dashboard | `http://31.97.61.216:32010` |

Use in Notebook Code (internal access):

```
# H2O3 connection
h2o.init(url='http://campus_h2o3:54321')

# Glasswall API
glasswall_api = 'http://campus_glasswall_api:8080'

# H2OGPT
h2ogpt_api = 'http://campus_h2ogpt:7860'

# PostgreSQL (if needed)
postgres_host = 'campus_postgres'
```

TEMPLATE NOTEBOOKS

Start with these pre-made tutorials in JupyterHub:

```
/home/jovyan/templates/
├── 01_H2O3_Introduction.ipynb       ← Start here!
├── 02_Data_Cleaning.ipynb
├── 03_Feature_Engineering.ipynb
├── 04_Model_Training_GBM.ipynb
├── 05_Model_Training_DL.ipynb
├── 06_AutoML_Pipeline.ipynb
```

```
└── 07_Model_Deployment.ipynb
```

To use: Copy to your work folder and modify!

🎓 LEARNING PATH

Week 1: Basics 1. Complete template notebooks 01-03 2. Use Student Dashboard for guided exercises 3. Ask H2OGPT at least 5 questions 4. Watch Glass Wall pipeline view

Week 2: Intermediate 1. Build 3 different model types 2. Try H2O3 AutoML 3. Compare model performance 4. Save and reload models

Week 3: Advanced 1. Create custom features 2. Tune hyperparameters 3. Build ensemble models 4. Complete a full project end-to-end

🆘 GETTING HELP

1st - Hint System - In Student Dashboard exercises, click the hint button

2nd - H2OGPT AI Assistant - Browser: `http://31.97.61.216:32002` - Available 24/7 for any question

3rd - Template Notebooks - Check `/home/jovyan/templates/` for examples

4th - Instructor - Email: instructor@svsconsultingindia.in

📋 QUICK START CHECKLIST

- ☐ Login to JupyterHub: `http://31.97.61.216:32000`
- ☐ Open Student Dashboard: `http://31.97.61.216:32010`
- ☐ Copy a template notebook to `/work/`
- ☐ Connect to H2O3 in your code
- ☐ Run your first model
- ☐ Watch Glass Wall visualization
- ☐ Ask H2OGPT a question
- ☐ Save your work

🚀 YOU'RE READY TO START!

Everything runs in your browser - no installation needed!

1. **Login:** `http://31.97.61.216:32000`
2. **Learn:** `http://31.97.61.216:32010`
3. **Code:** Write notebooks in JupyterHub
4. **Connect:** `h2o.init(url='http://campus_h2o3:54321')`
5. **Learn:** Watch Glass Wall View

Good luck and have fun learning AI/ML! 🎉

Jeeves Campus - Glass Wall Learning Platform
SVS Consulting India
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