Working with Graphs

- ## Creating a graph

```
import dgl
import numpy as np
import torch
```

edges

$$g = dgl.graph (([0,0,0], [1,2,3]), num\_nodes=4)$$

$g.ndata['a'] = torch.randn (6, 3)$ → node features

$g.edata['a'] = torch.randn (6, 3)$ → edge features

--- useful functions ---

g. num_nodes()   g. num_edges()

g. edges ()

g. out_degrees (0) , g. in_degrees(0)

new g = dgl. add_reverse_edges (g)

subgraph

```
sg1 = g.subgraph([0,1,3])

sg2 = g.edge_subgraph([0,1,3])     } inducing subgraph

sg1.ndata[dgl.NID]   original ids

sg1.edata[dgl.EID]   original ids
```

Saving one or more graphs:

```
dgl.save_graphs('graph.dgl', g
                           [g,g1,g2])
```

loading graphs

```
(gr), __ = dgl.load_graphs('graph.dgl')

(g,g1,g2), __ = dgl.load_graphs('graph.dgl')
```