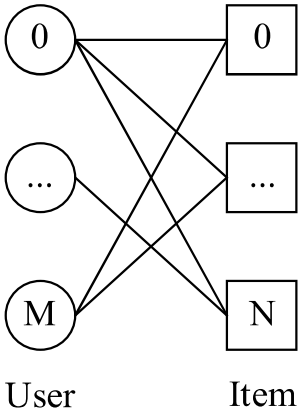


FIG. 1

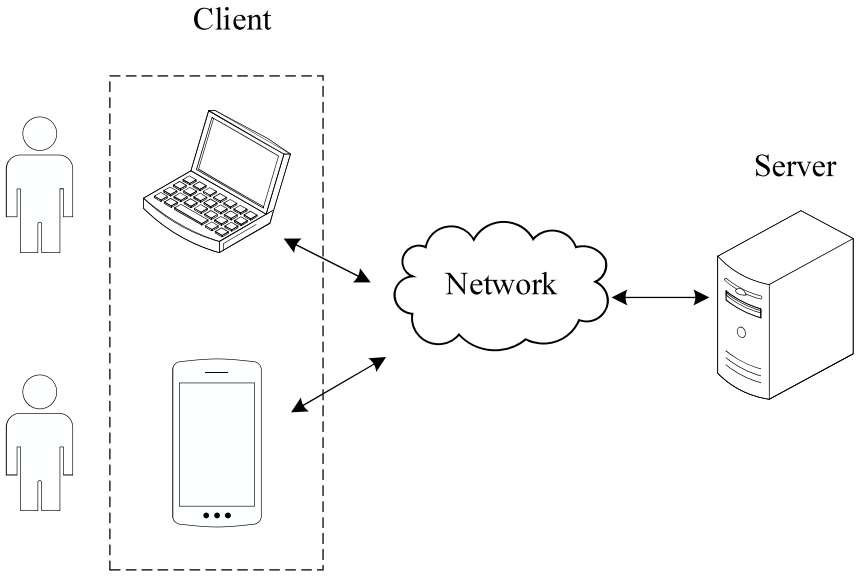


FIG. 2

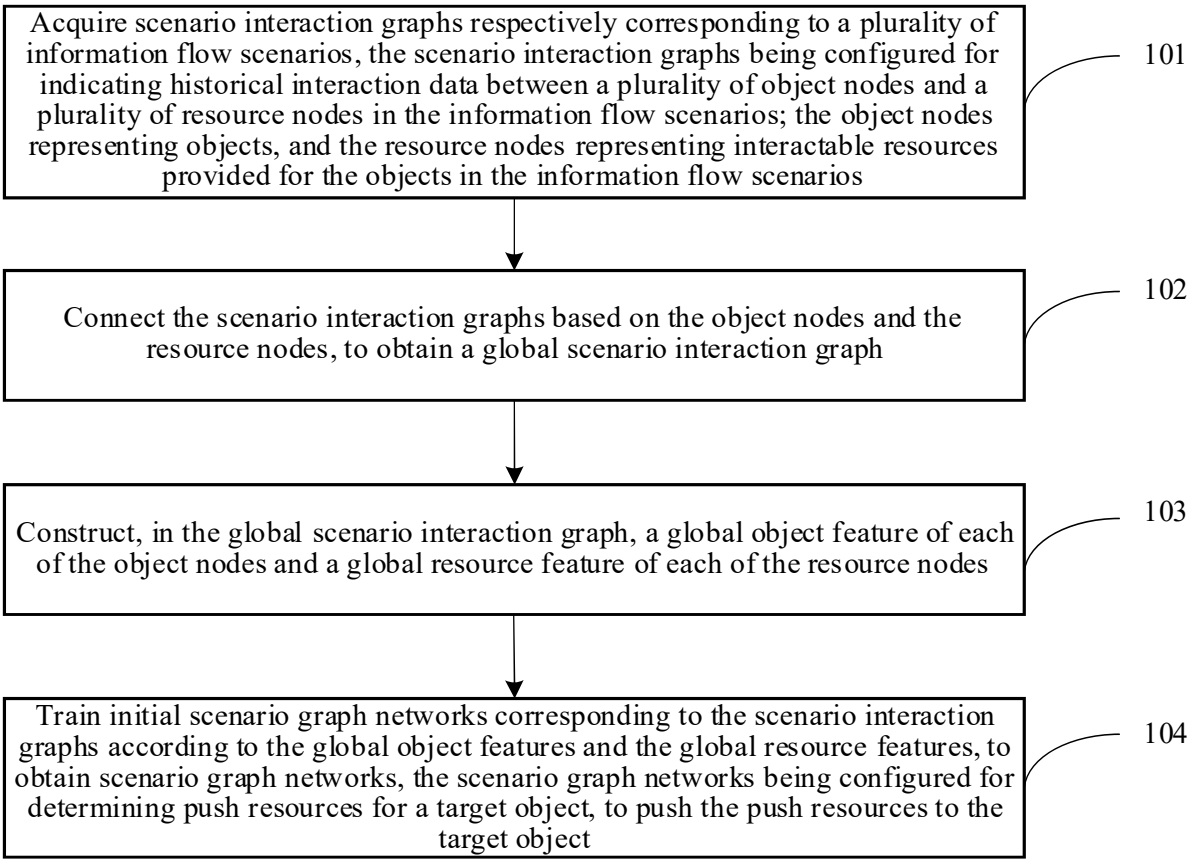

Acquire scenario interaction graphs respectively corresponding to a plurality of information flow scenarios, the scenario interaction graphs being configured for indicating historical interaction data between a plurality of object nodes and a plurality of resource nodes in the information flow scenarios; the object nodes representing objects, and the resource nodes representing interactable resources provided for the objects in the information flow scenarios
101
Connect the scenario interaction graphs based on the object nodes and the resource nodes, to obtain a global scenario interaction graph
102
Construct, in the global scenario interaction graph, a global object feature of each of the object nodes and a global resource feature of each of the resource nodes
103
Train initial scenario graph networks corresponding to the scenario interaction graphs according to the global object features and the global resource features, to obtain scenario graph networks, the scenario graph networks being configured for determining push resources for a target object, to push the push resources to the target object
104

FIG. 3

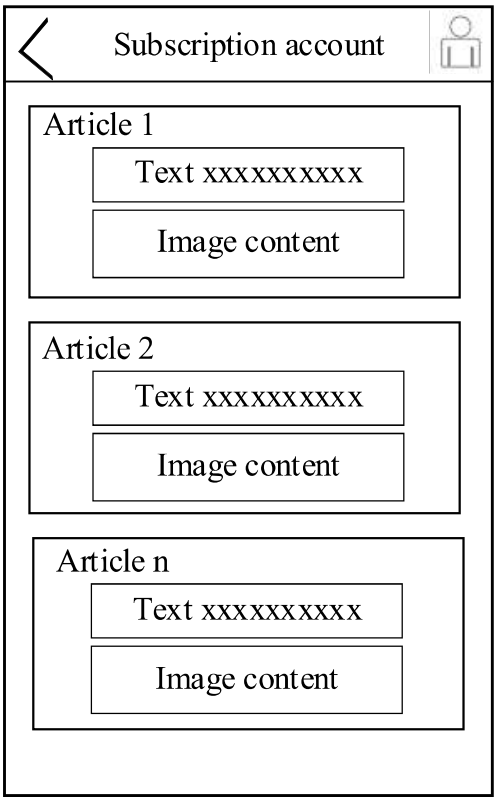

Subscription account
Article 1
Text xxxxxxxxxx
Image content
Article 2
Text xxxxxxxxxx
Image content
Article n
Text xxxxxxxxxx
Image content

FIG. 4A

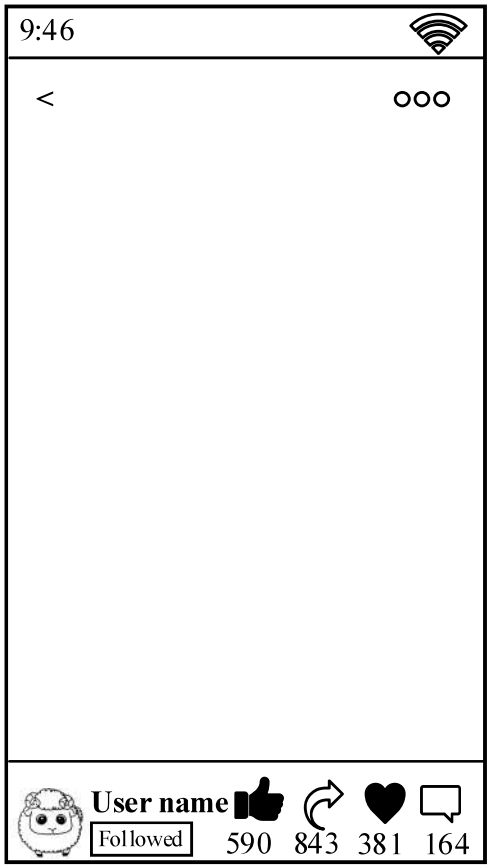

9:46
<
User name
Followed
590
843
381
164

FIG. 4B

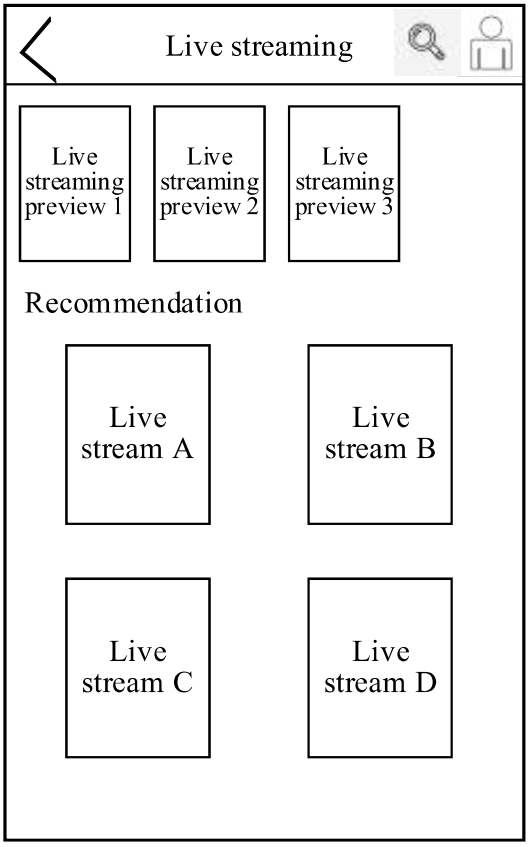

Live streaming
Live streaming preview 1
Live streaming preview 2
Live streaming preview 3
Recommendation
Live stream A
Live stream B
Live stream C
Live stream D

FIG. 4C

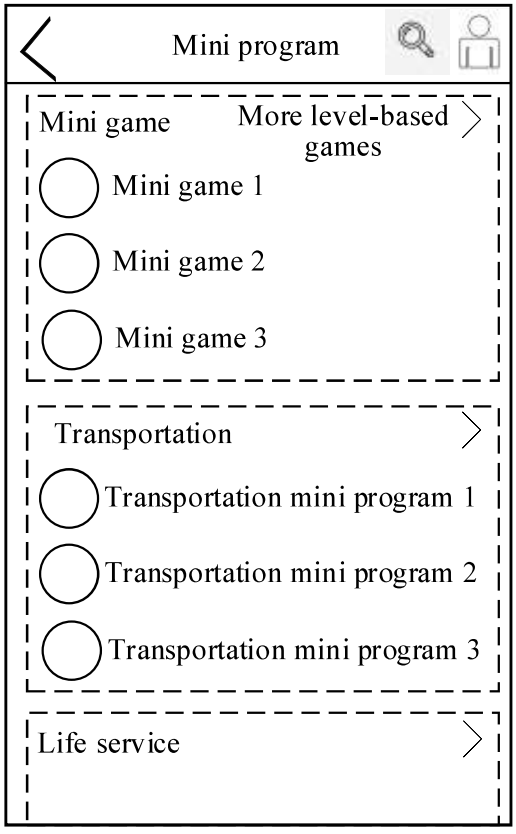

Mini program
Mini game
More level-based games
Mini game 1
Mini game 2
Mini game 3
Transportation
Transportation mini program 1
Transportation mini program 2
Transportation mini program 3
Life service

FIG. 4D

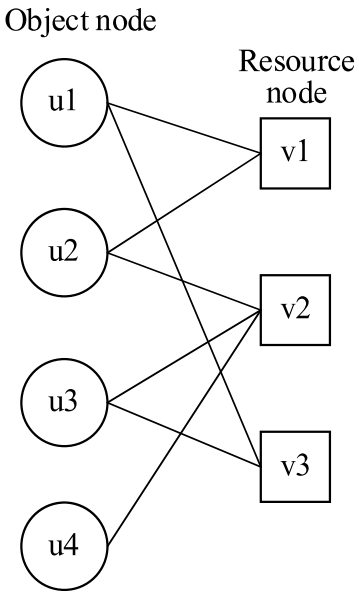


FIG. 5

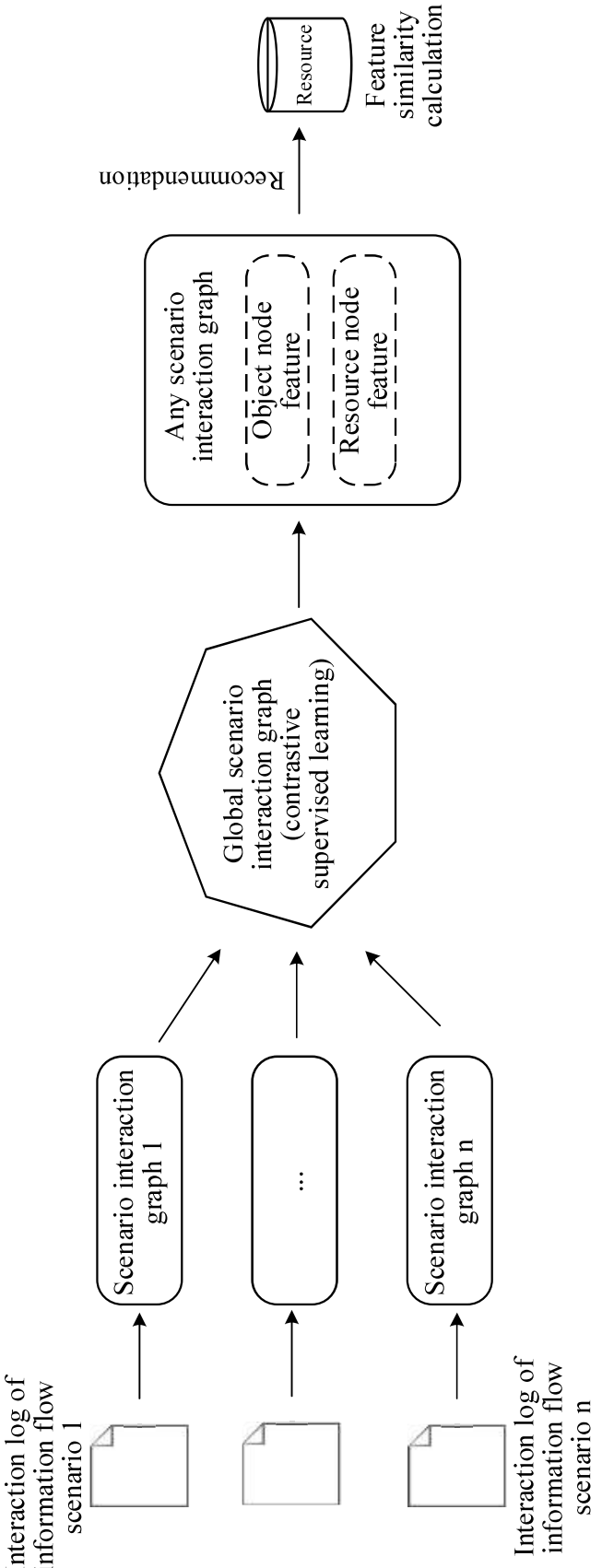

Interaction log of information flow scenario 1
Scenario interaction graph 1
...
Scenario interaction graph n
Interaction log of information flow scenario n
Global scenario interaction graph (contrastive supervised learning)
Any scenario interaction graph
Object node feature
Resource node feature
Recommendation
Resource
Feature similarity calculation

FIG. 6

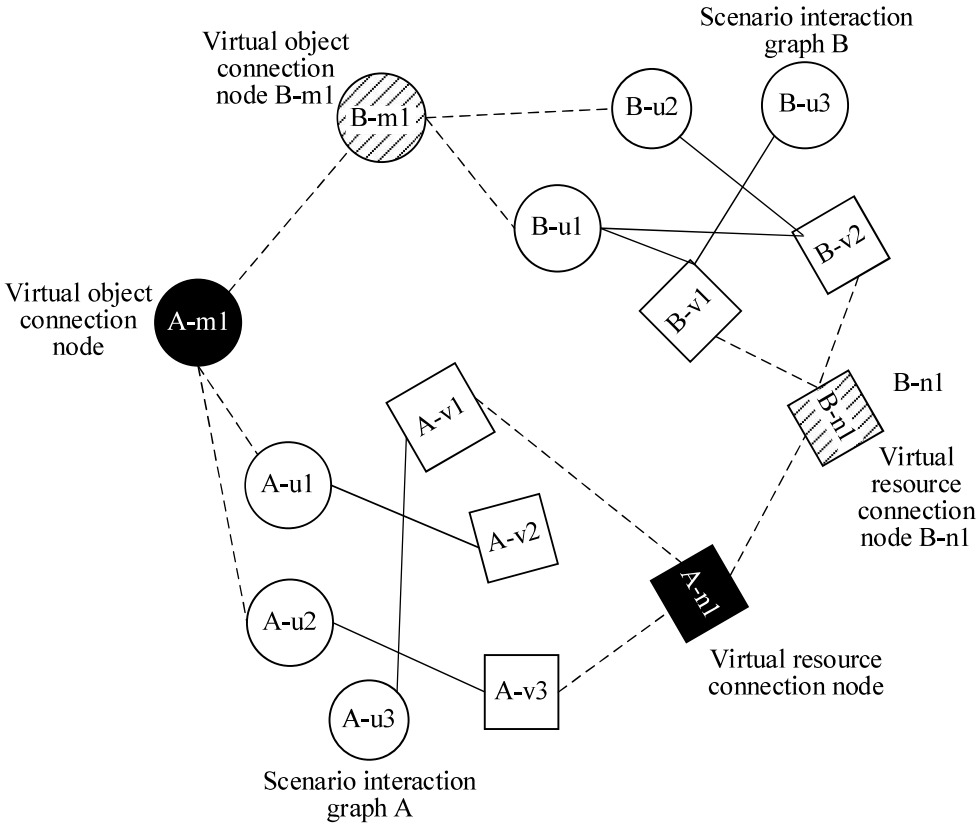

Scenario interaction graph B
Virtual object connection node B-m1
B-m1
B-u2
B-u3
B-u1
B-v2
B-v1
Virtual object connection node
A-m1
B-n1
B-n1
Virtual resource connection node B-n1
A-v1
A-u1
A-v2
A-n1
A-u2
Virtual resource connection node
A-v3
A-u3
Scenario interaction graph A

FIG. 7

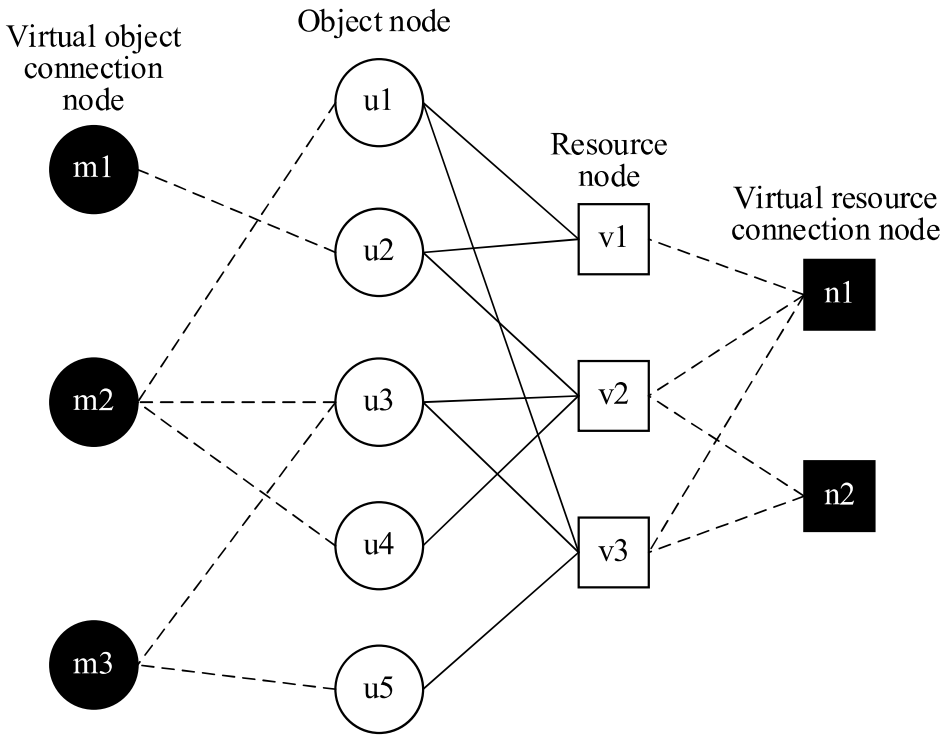

Virtual object connection node
Object node
Resource node
Virtual resource connection node
m1
m2
m3
u1
u2
u3
u4
u5
v1
v2
v3
n1
n2

FIG. 8

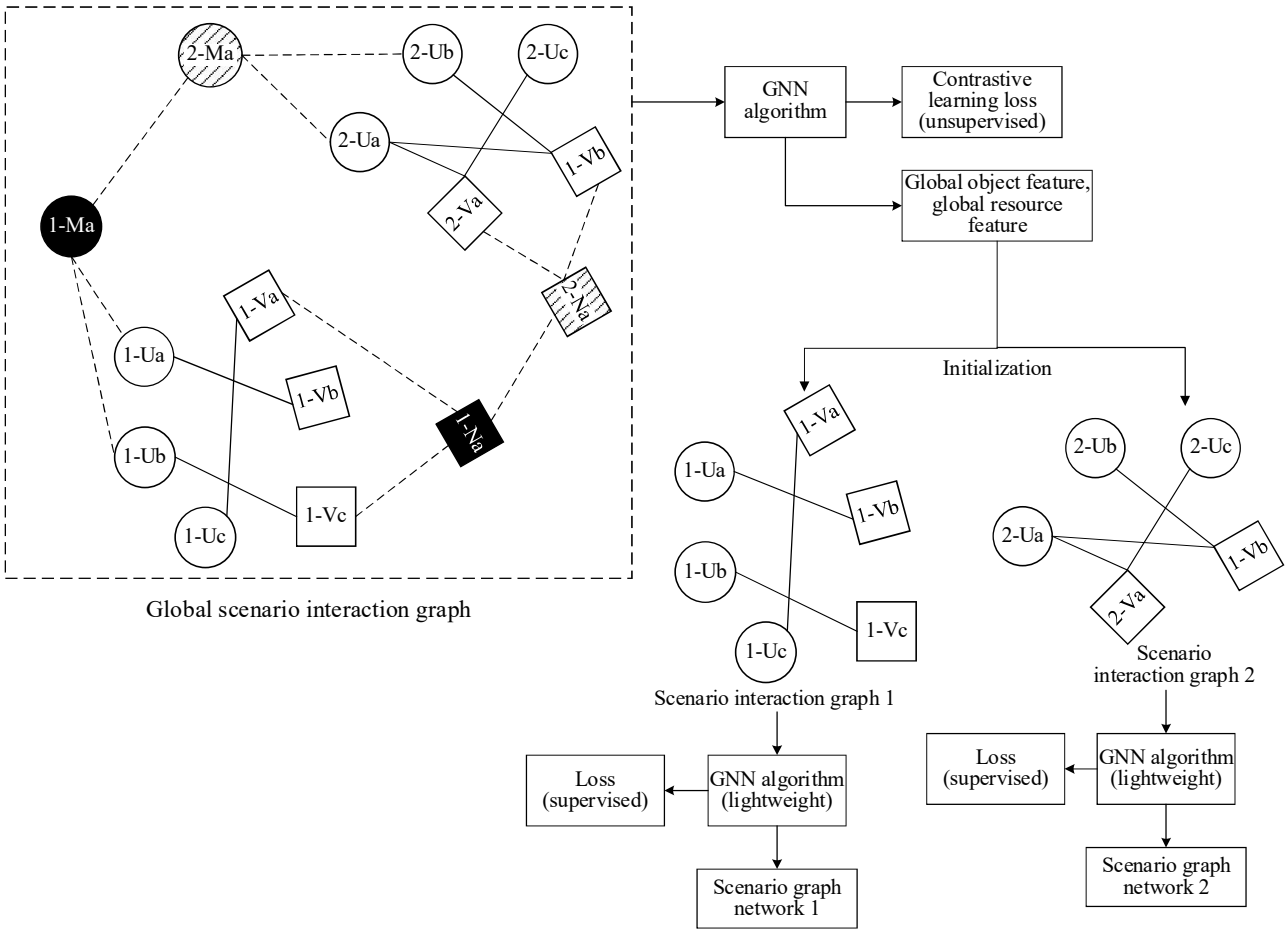

2-Ma
2-Ub
2-Uc
2-Ua
1-Vb
2-Va
2-Na
1-Ma
1-Va
1-Ua
1-Vb
1-Na
1-Ub
1-Vc
1-Uc
Global scenario interaction graph
GNN algorithm
Contrastive learning loss (unsupervised)
Global object feature, global resource feature
Initialization
Scenario interaction graph 1
Scenario interaction graph 2
Loss (supervised)
GNN algorithm (lightweight)
Scenario graph network 1
Scenario graph network 2

FIG. 9

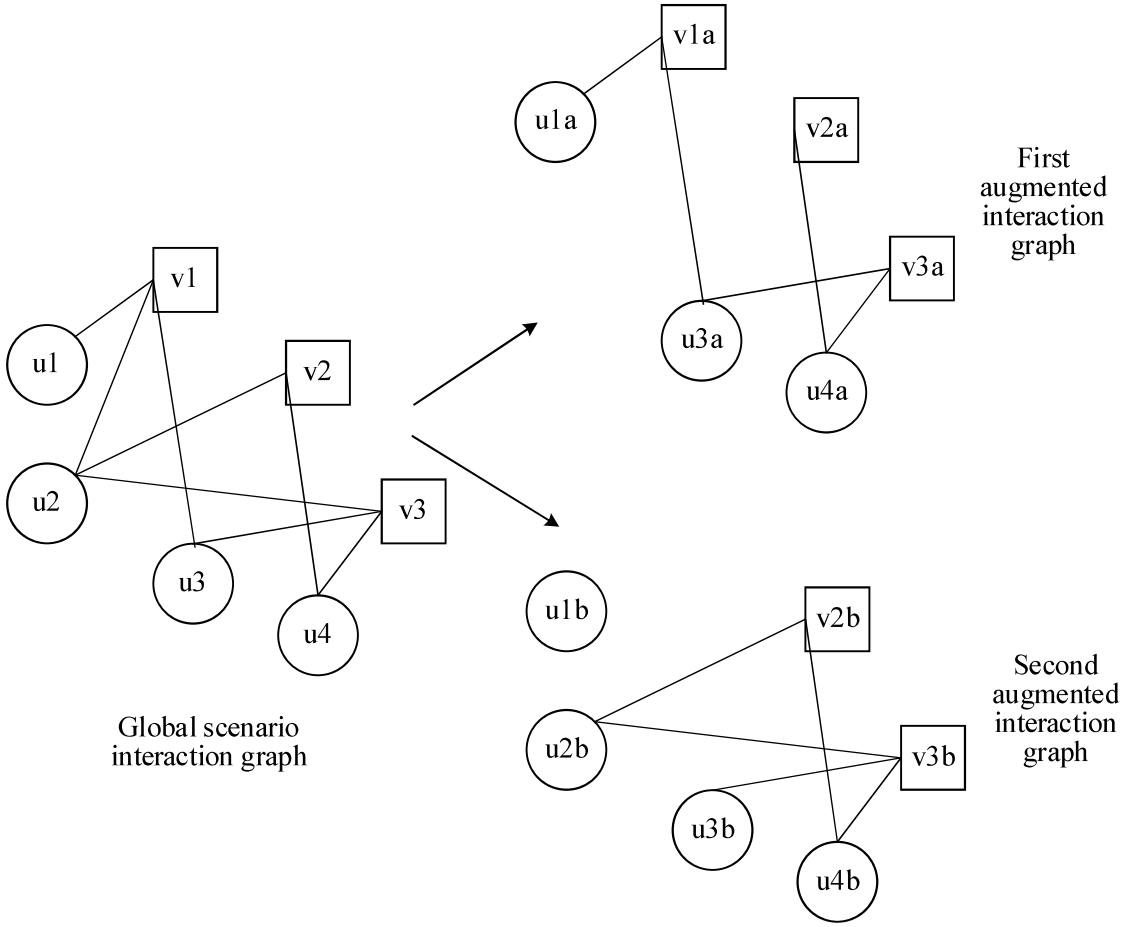

v1a
u1a
v2a
First augmented interaction graph
v3a
u3a
u4a
v1
u1
v2
u2
v3
u3
u4
Global scenario interaction graph
u1b
v2b
Second augmented interaction graph
u2b
v3b
u3b
u4b

FIG. 10

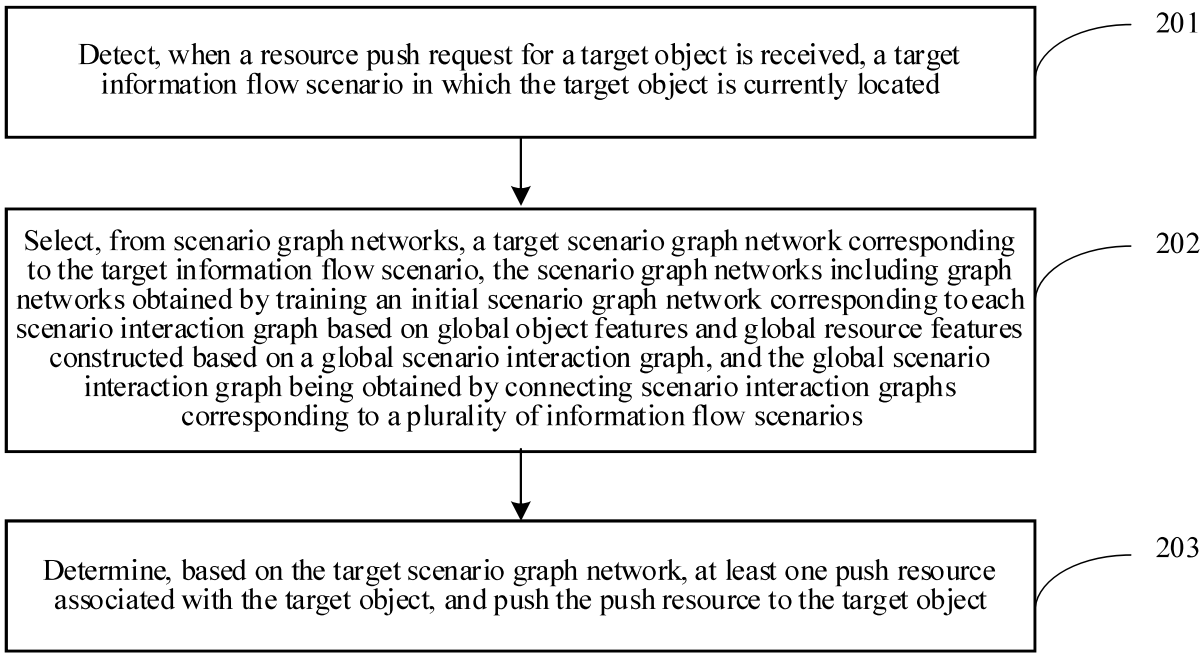

Detect, when a resource push request for a target object is received, a target information flow scenario in which the target object is currently located
201
Select, from scenario graph networks, a target scenario graph network corresponding to the target information flow scenario, the scenario graph networks including graph networks obtained by training an initial scenario graph network corresponding to each scenario interaction graph based on global object features and global resource features constructed based on a global scenario interaction graph, and the global scenario interaction graph being obtained by connecting scenario interaction graphs corresponding to a plurality of information flow scenarios
202
Determine, based on the target scenario graph network, at least one push resource associated with the target object, and push the push resource to the target object
203

FIG. 11

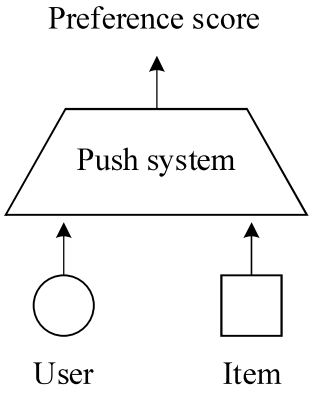


FIG. 12A

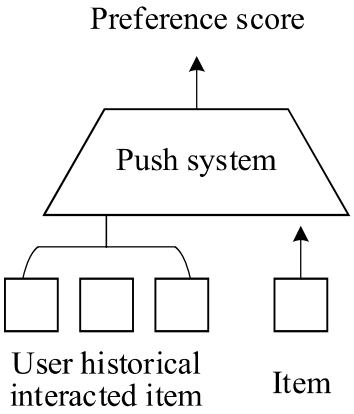


FIG. 12B

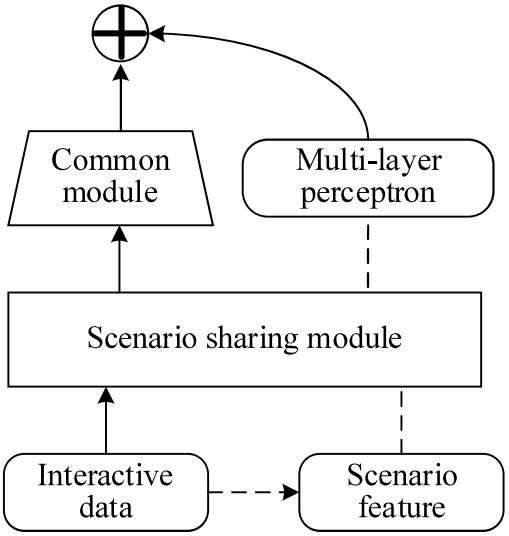


FIG. 13A

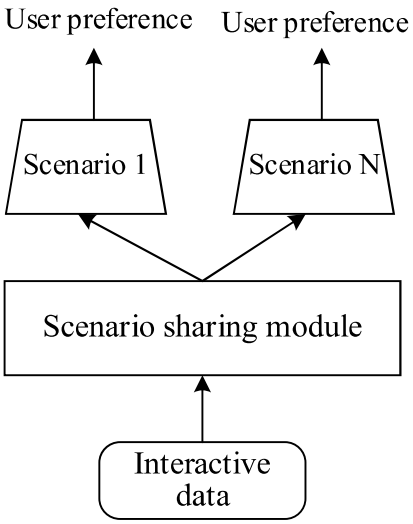


FIG. 13B

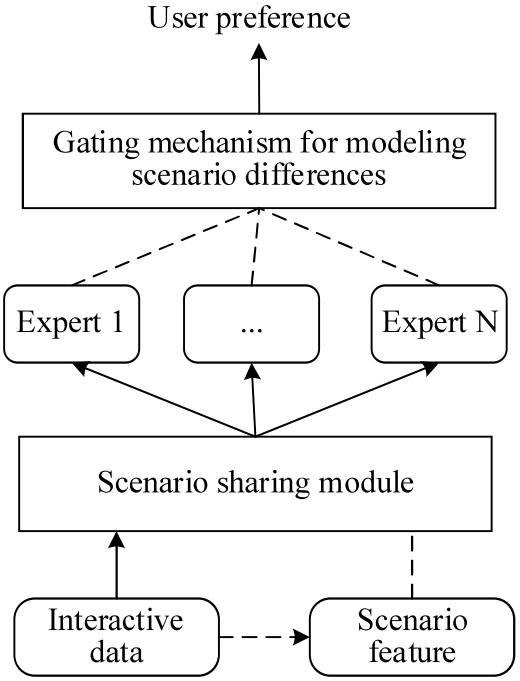


FIG. 13C

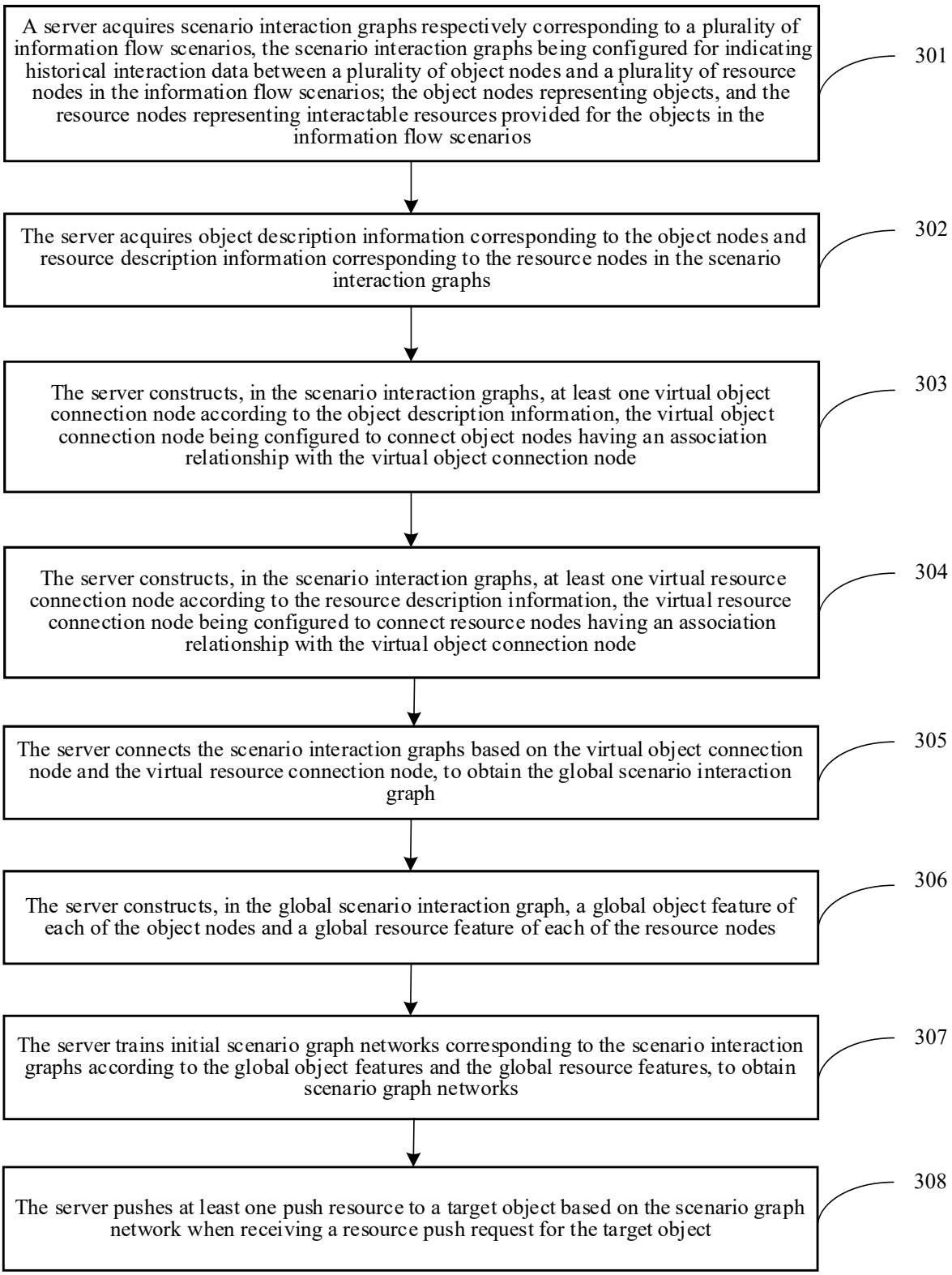

A server acquires scenario interaction graphs respectively corresponding to a plurality of information flow scenarios, the scenario interaction graphs being configured for indicating historical interaction data between a plurality of object nodes and a plurality of resource nodes in the information flow scenarios; the object nodes representing objects, and the resource nodes representing interactable resources provided for the objects in the information flow scenarios
301
The server acquires object description information corresponding to the object nodes and resource description information corresponding to the resource nodes in the scenario interaction graphs
302
The server constructs, in the scenario interaction graphs, at least one virtual object connection node according to the object description information, the virtual object connection node being configured to connect object nodes having an association relationship with the virtual object connection node
303
The server constructs, in the scenario interaction graphs, at least one virtual resource connection node according to the resource description information, the virtual resource connection node being configured to connect resource nodes having an association relationship with the virtual object connection node
304
The server connects the scenario interaction graphs based on the virtual object connection node and the virtual resource connection node, to obtain the global scenario interaction graph
305
The server constructs, in the global scenario interaction graph, a global object feature of each of the object nodes and a global resource feature of each of the resource nodes
306
The server trains initial scenario graph networks corresponding to the scenario interaction graphs according to the global object features and the global resource features, to obtain scenario graph networks
307
The server pushes at least one push resource to a target object based on the scenario graph network when receiving a resource push request for the target object
308

FIG. 14

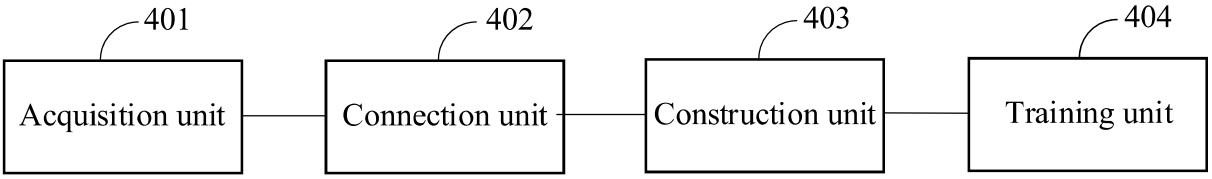


FIG. 15

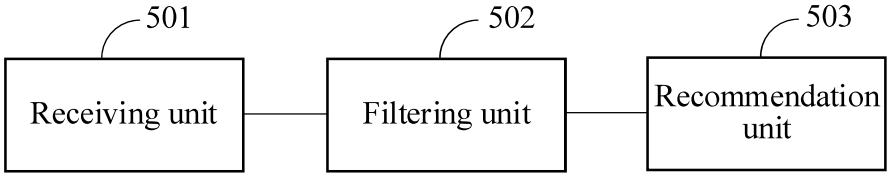


FIG. 16

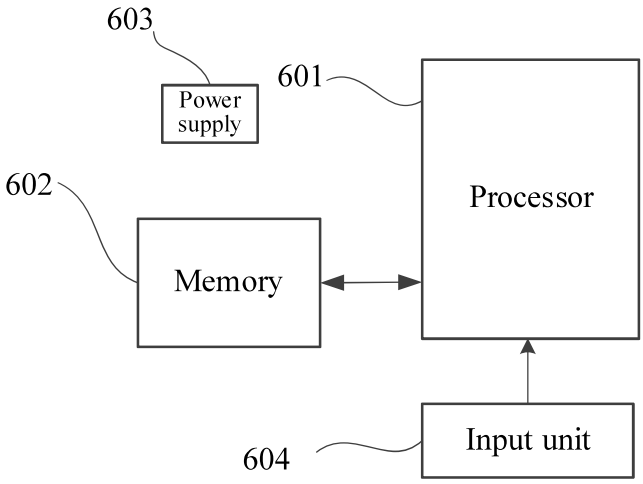


FIG. 17