Orchestrate your business logic reliably with workflow as code

@marcduiker

Marc Duiker

Sr Dev Advocate

Diagrid

Azure MVP

Dapr Community Manager

❤️ pixel art

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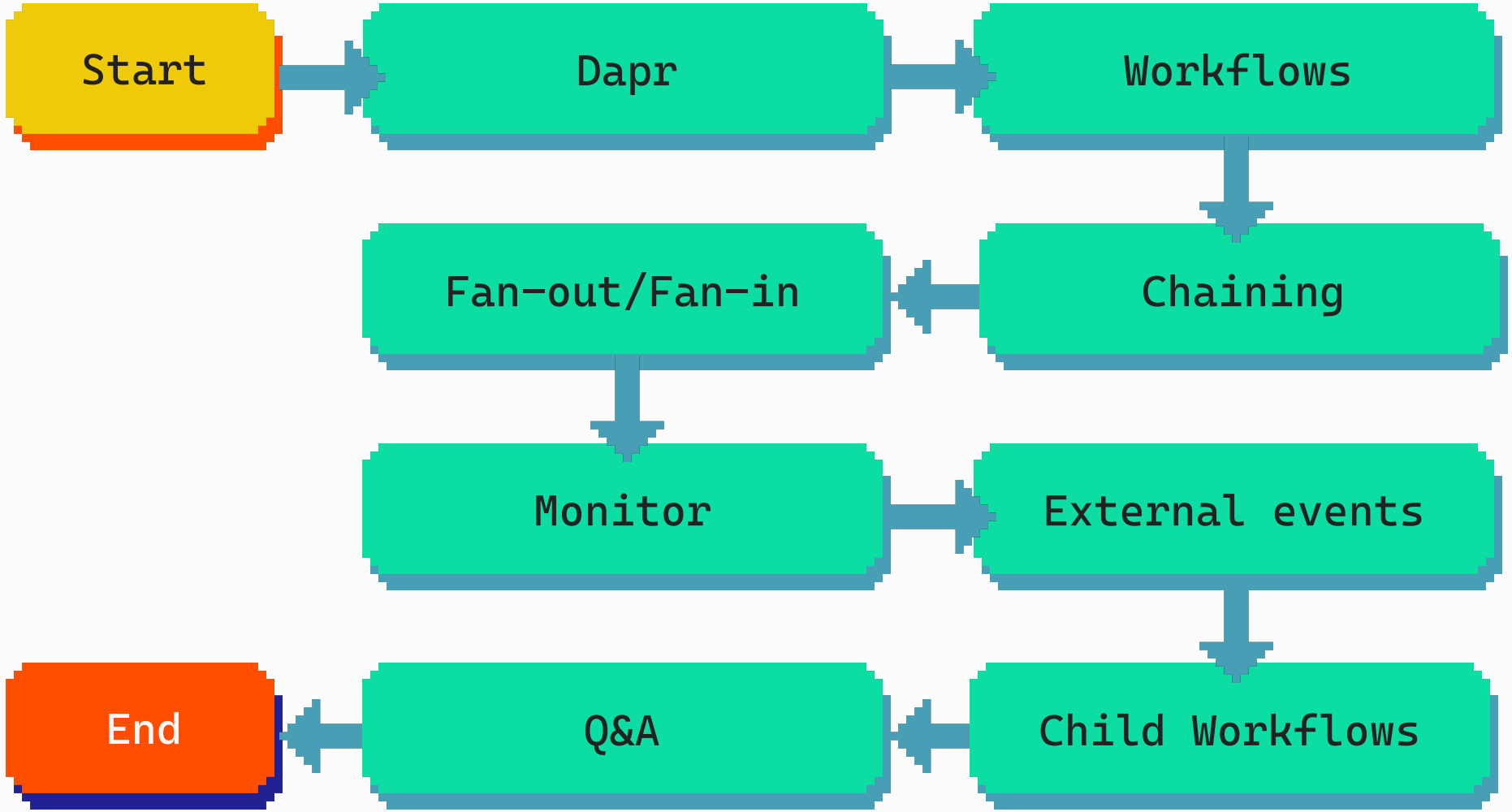
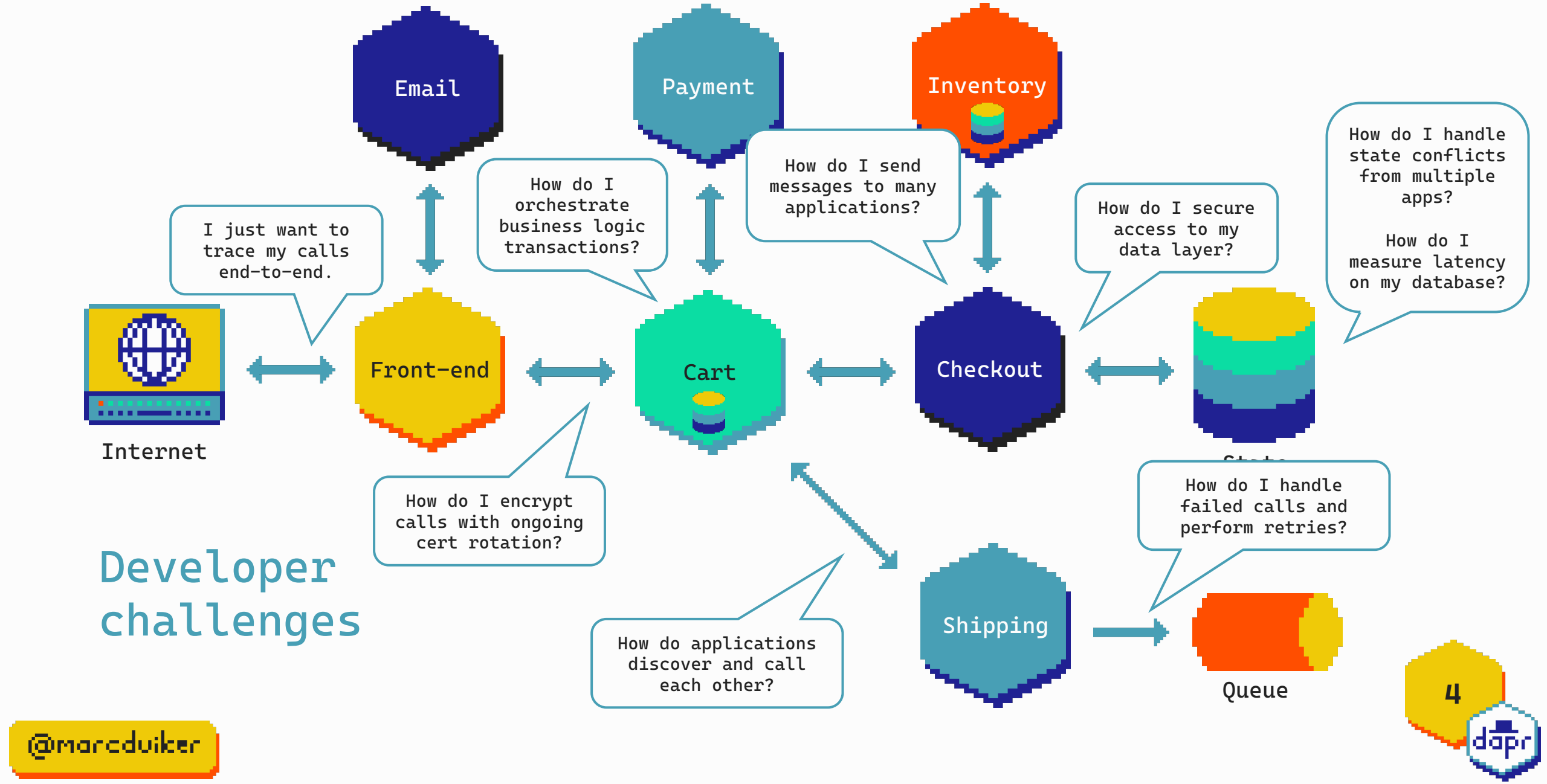

Start
Dapr
Workflows
Chaining
Fan-out/Fan-in
Monitor
External events
Child Workflows
Q&A
End


Email
Payment
Inventory
I just want to trace my calls end-to-end.
How do I orchestrate business logic transactions?
How do I send messages to many applications?
How do I secure access to my data layer?
How do I handle state conflicts from multiple apps?
How do I measure latency on my database?
Internet
Front-end
Cart
Checkout
How do I encrypt calls with ongoing cert rotation?
How do I handle failed calls and perform retries?
How do applications discover and call each other?
Shipping
Queue
Developer challenges
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4
dapr

Distributed
application
runtime

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Speeds up microservice development by providing an integrated set of APIs for communication, state, and workflow.

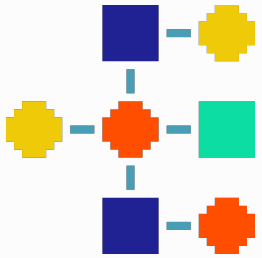
Built-in security,
resiliency and observability
capabilities.

kubernetes

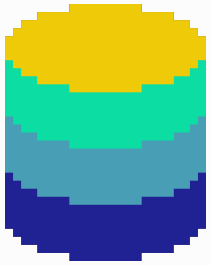
virtual or
physical machines

Contributing organizations

Dapr APIs

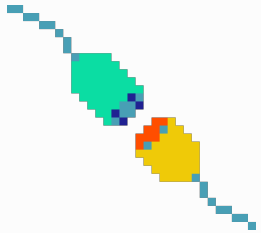


Service invocation

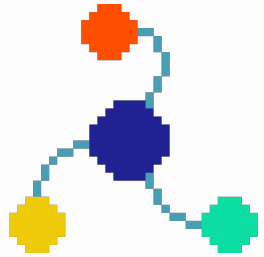


State Management

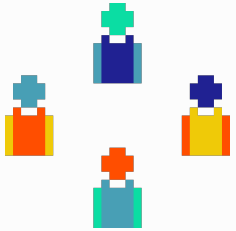
Publish & subscribe



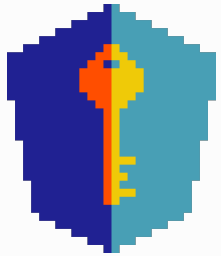
Bindings (input & output)



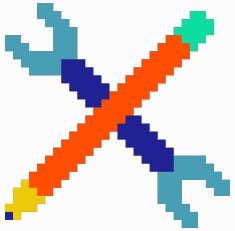
Observability



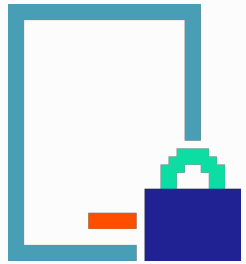
Actors



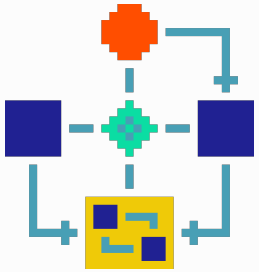
Secret Stores



External Configuration



Distributed Lock



Workflows

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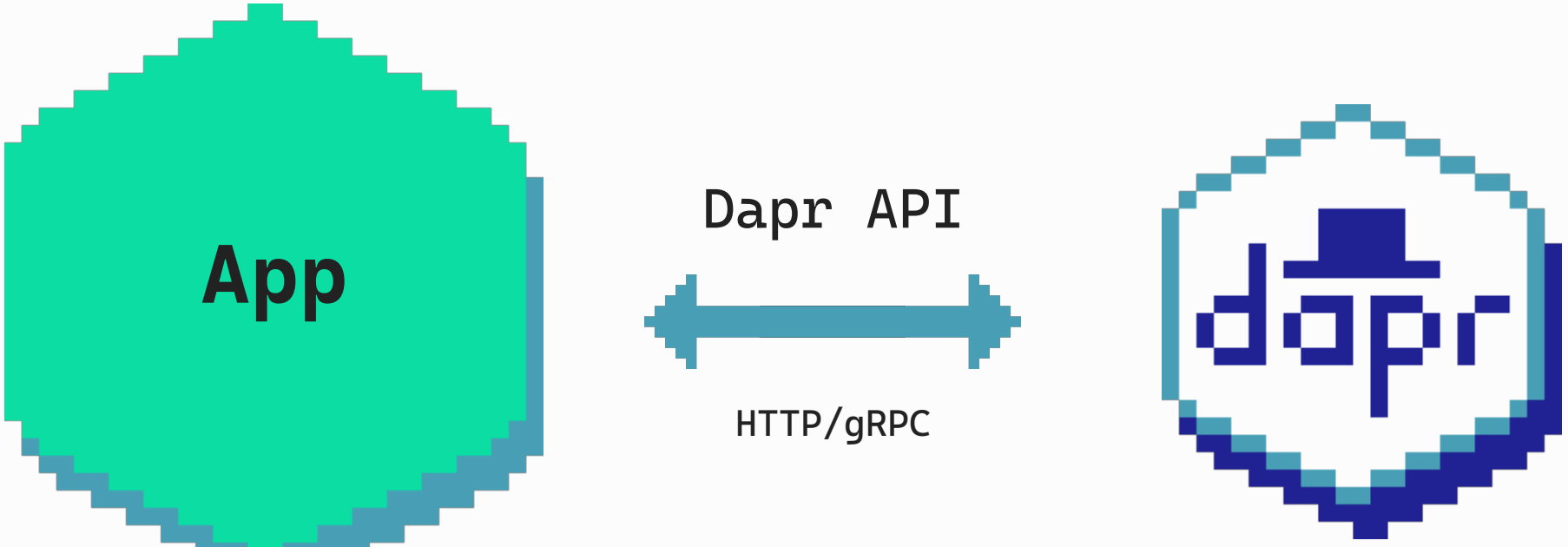
dapr



Application

Dapr sidecar

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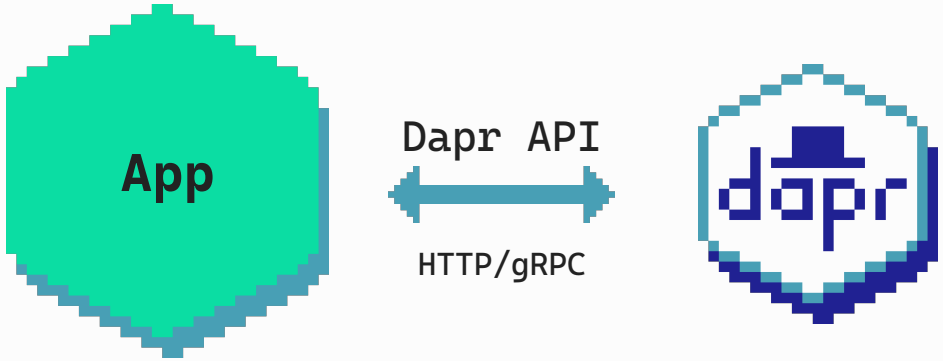
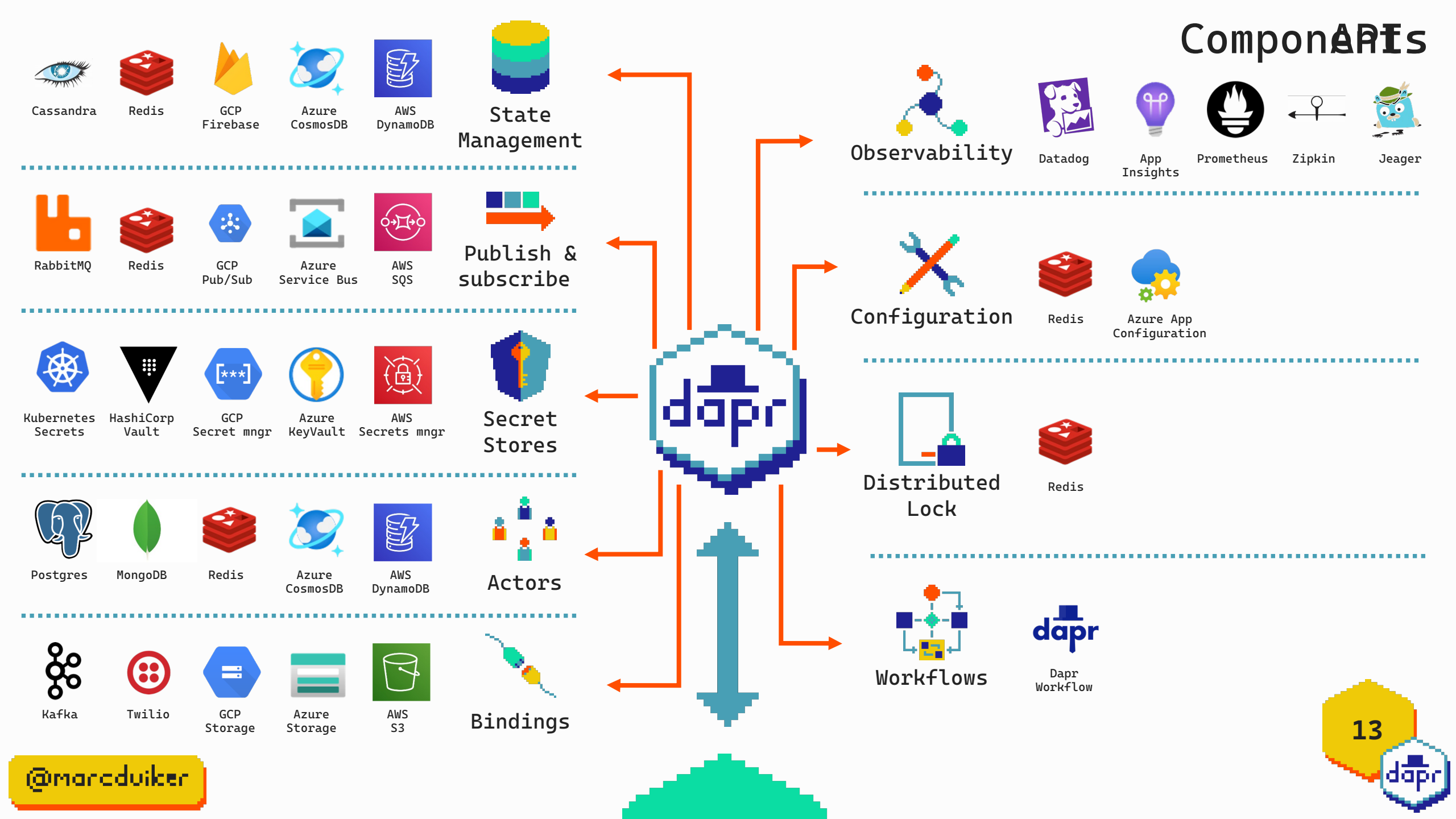



```
POST http://localhost:3500/v1.0/invoke/cart/method/order

GET http://localhost:3500/v1.0/state/inventory/item50

POST http://localhost:3500/v1.0/publish/mybroker/order-messages

GET http://localhost:3500/v1.0/secrets/vault/password42

POST http://localhost:3500/v1.0-beta1/workflows/dapr/businessprocess/start
```

ComponentAPIs



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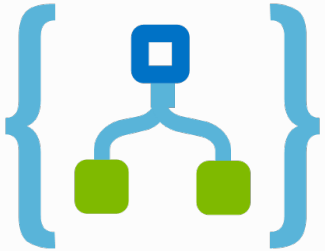
Workflows

A sequence of tasks or activities that are performed to accomplish a specific goal.

Business Process Automation

Microsoft® BizTalk Server



Logic Apps

Durable

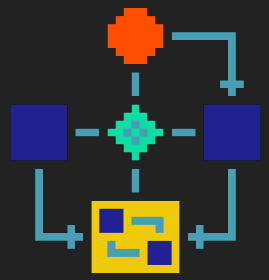
Power Automate

nintex

CAMUNDA

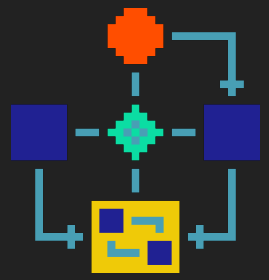
Temporal

Dapr workflow works with all the other integrated APIs 🎉



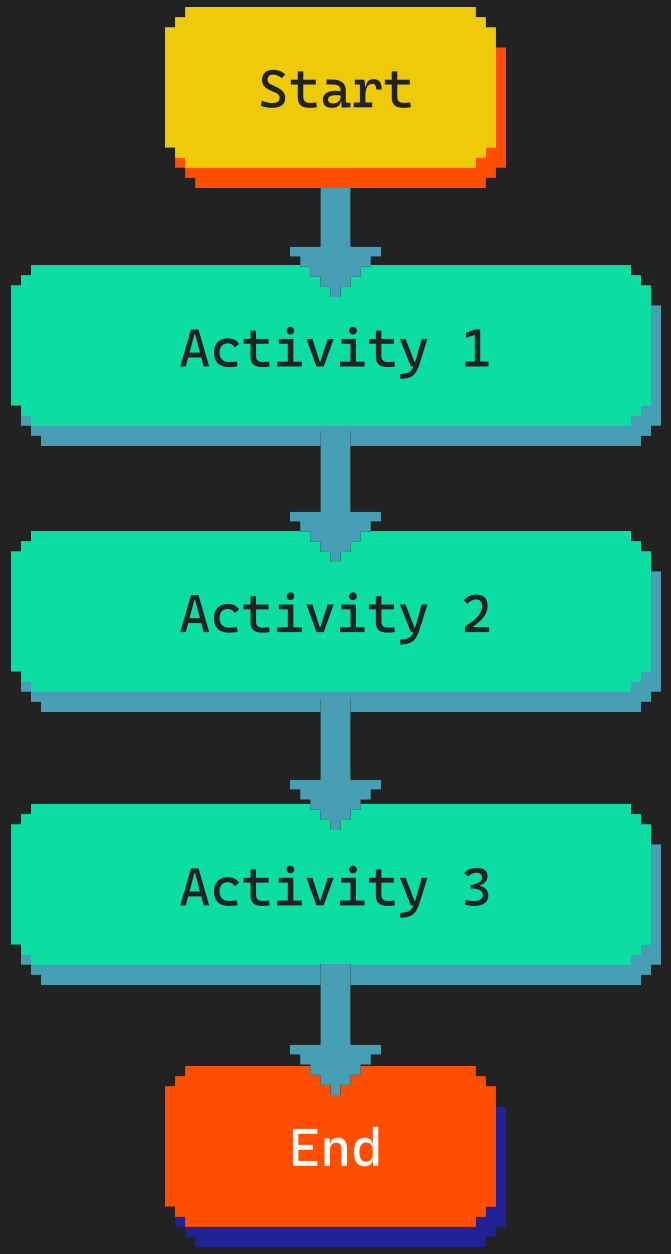
Workflows

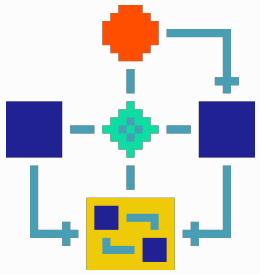
Workflow patterns



Workflows

Chaining





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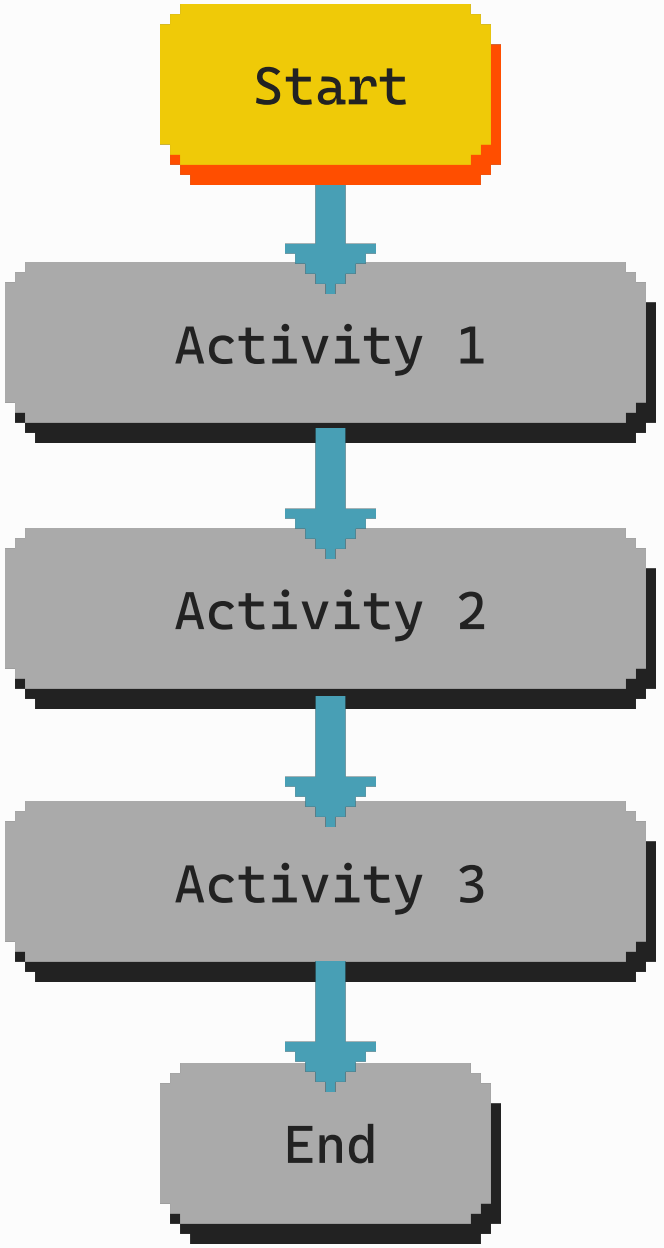

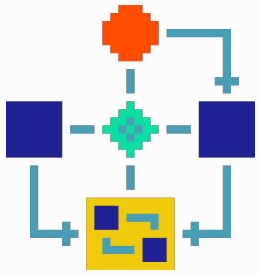

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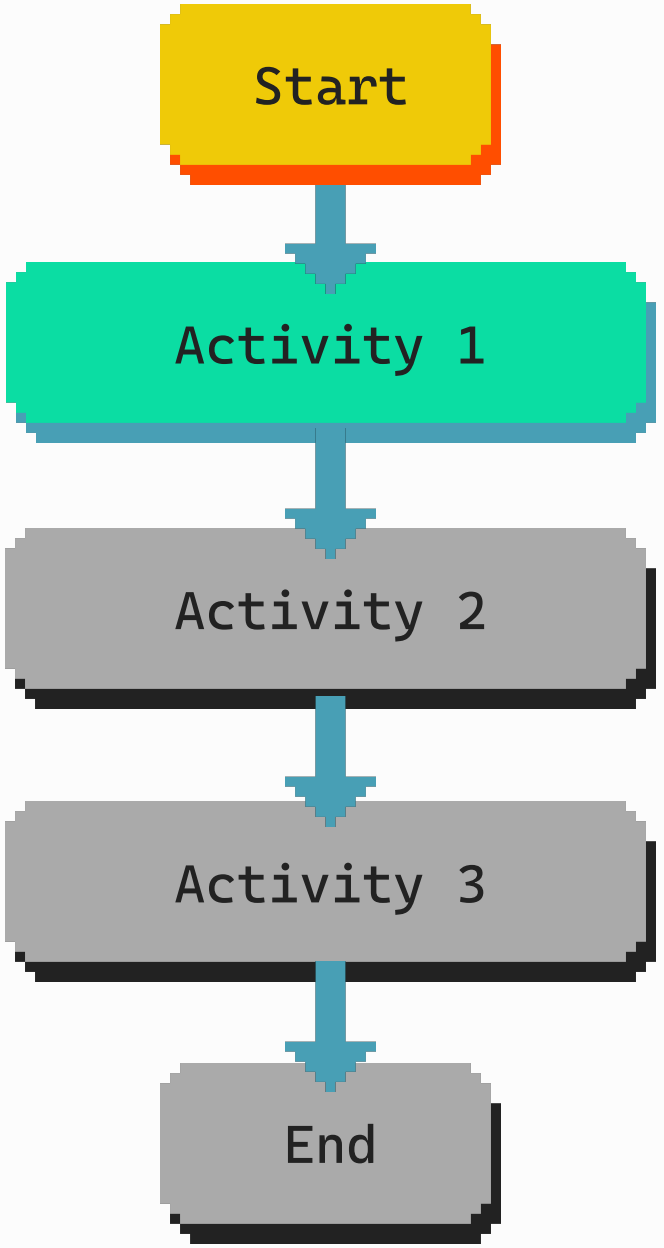

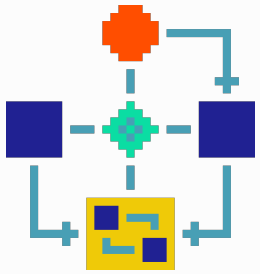

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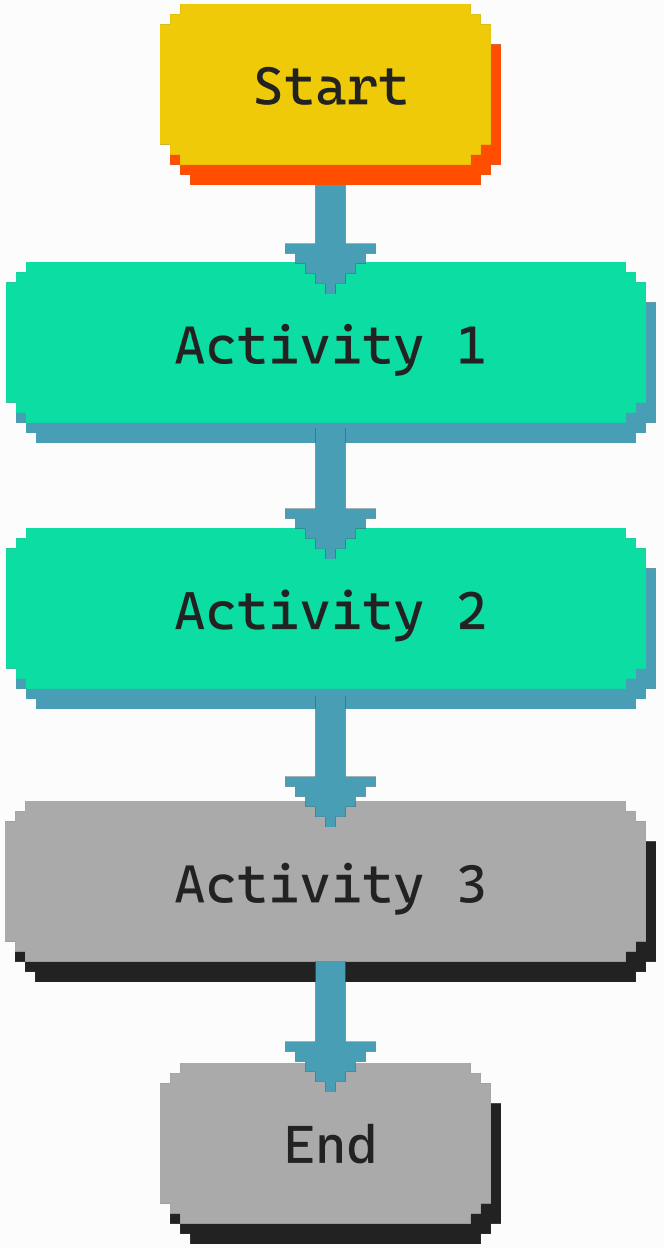

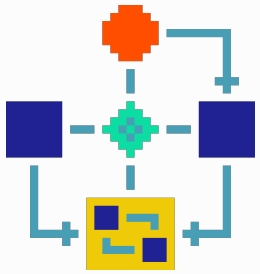

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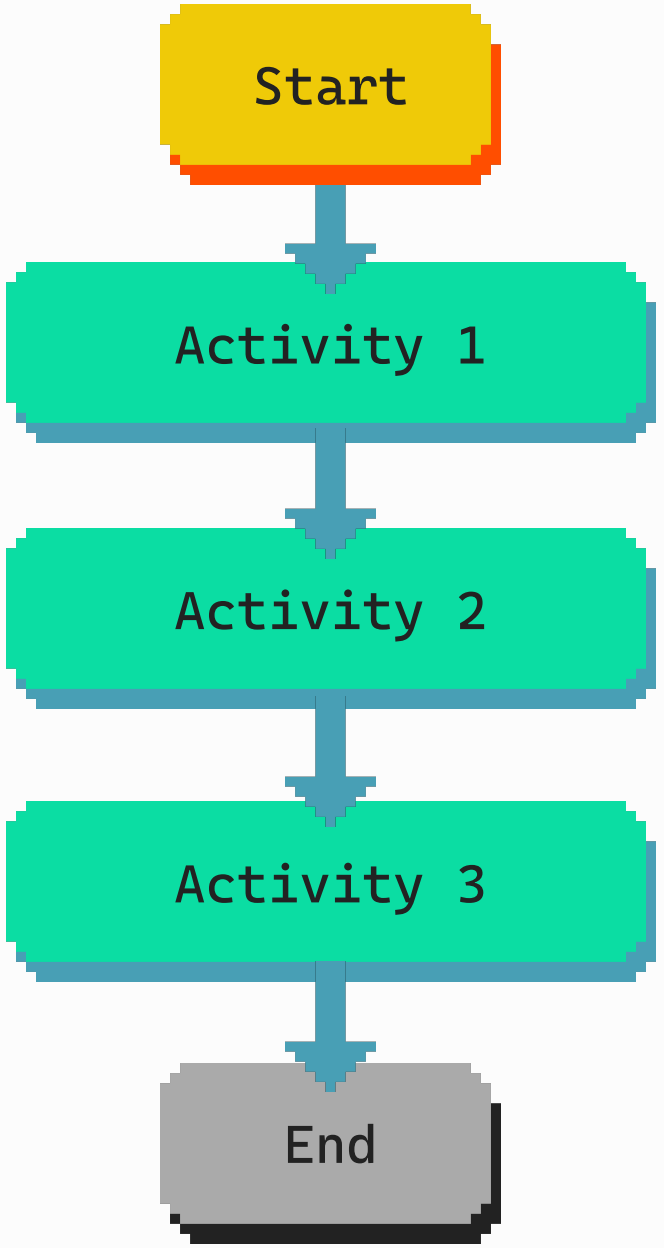

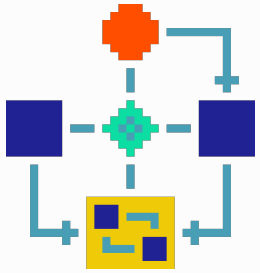

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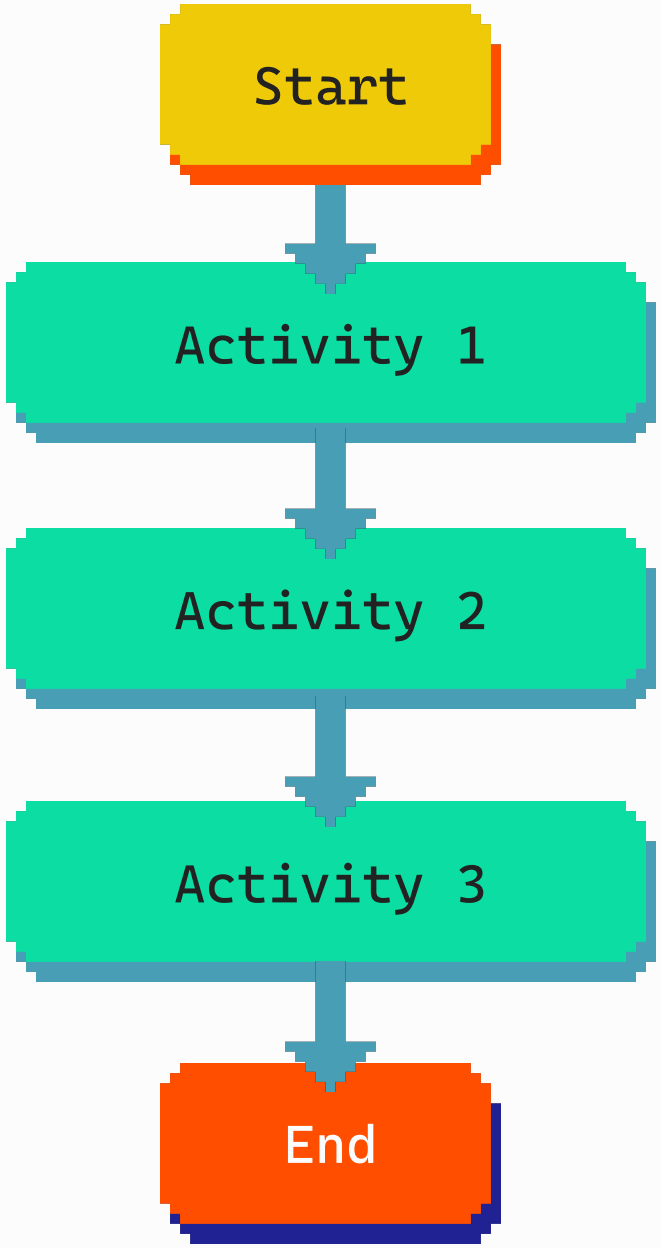
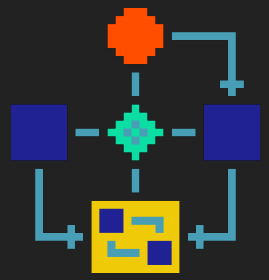
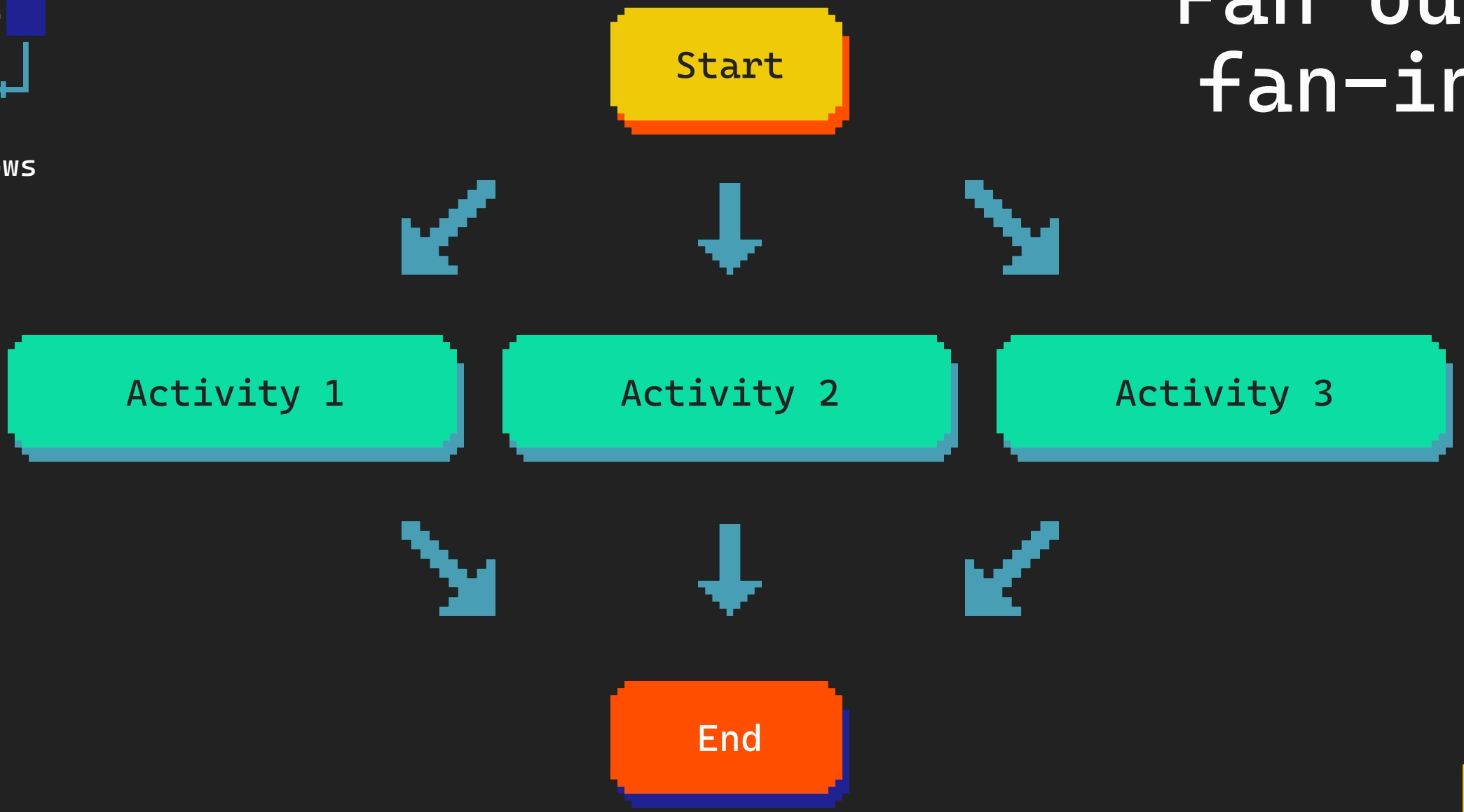
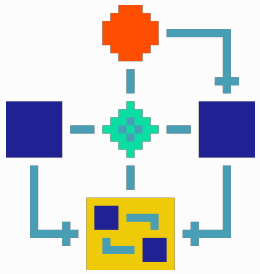




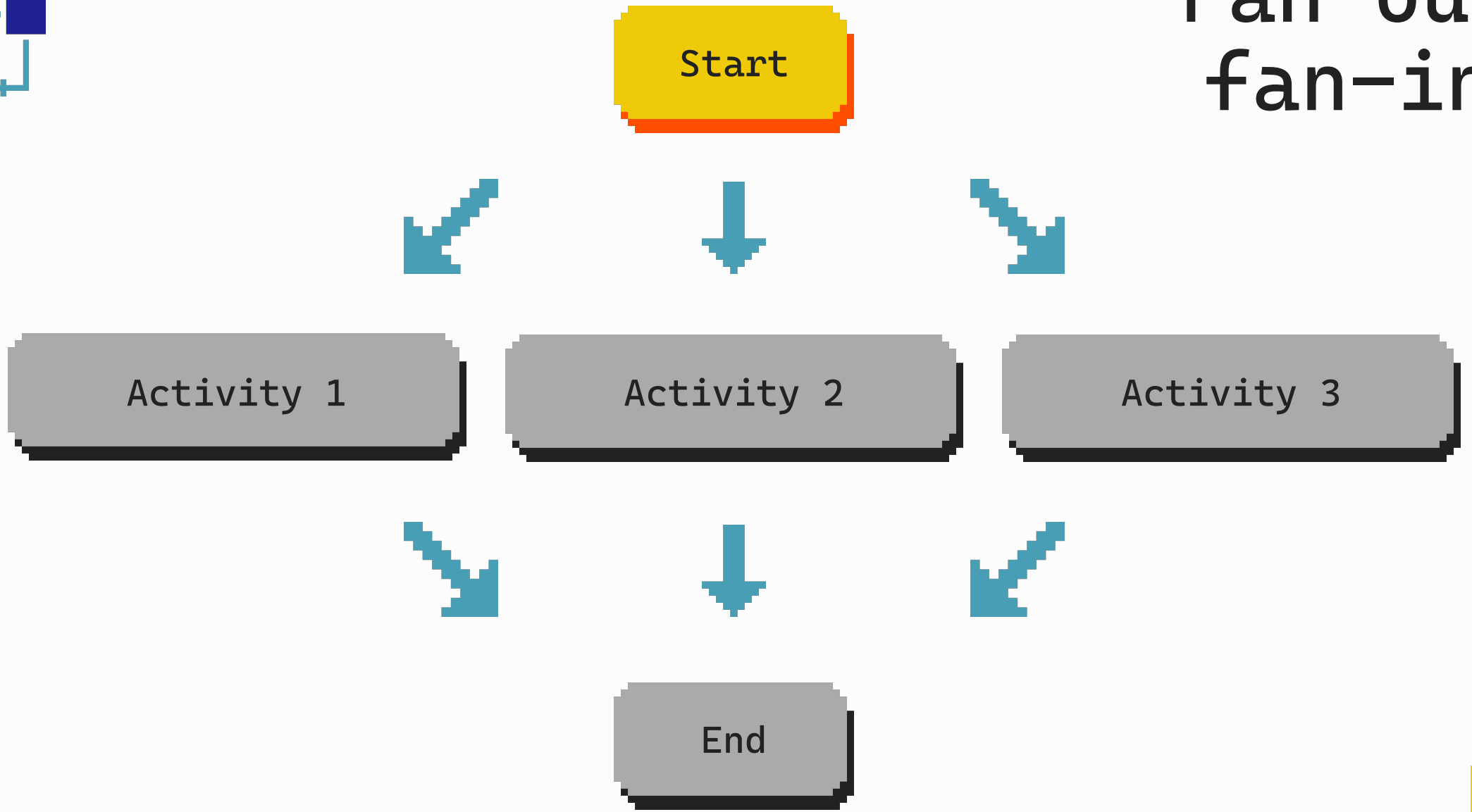
Workflows

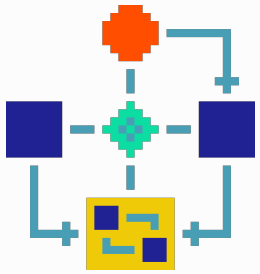
Fan-out fan-in



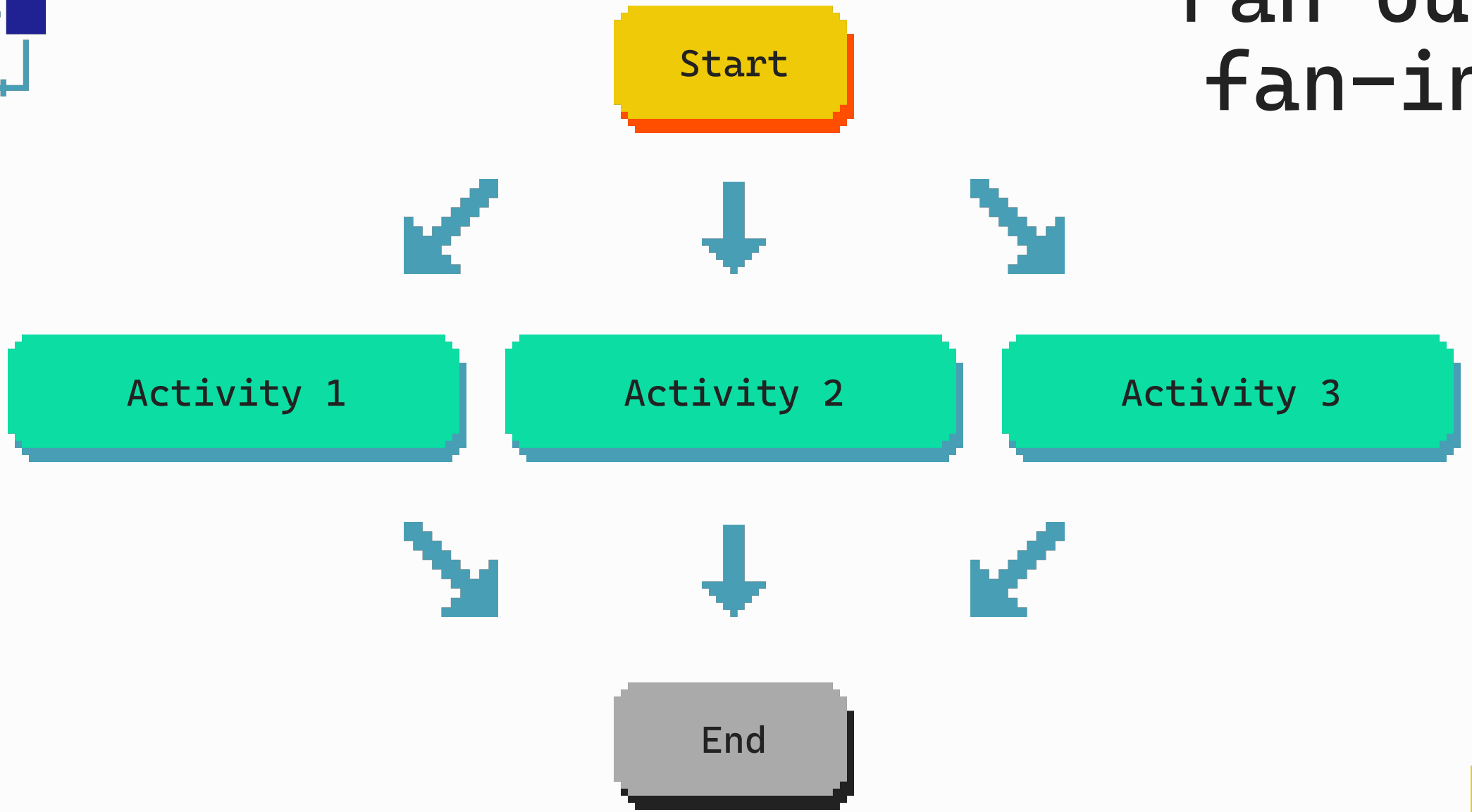


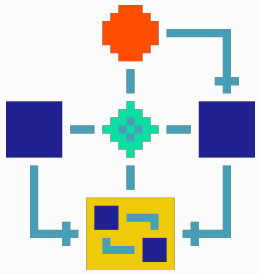
Fan-out fan-in





Fan-out fan-in





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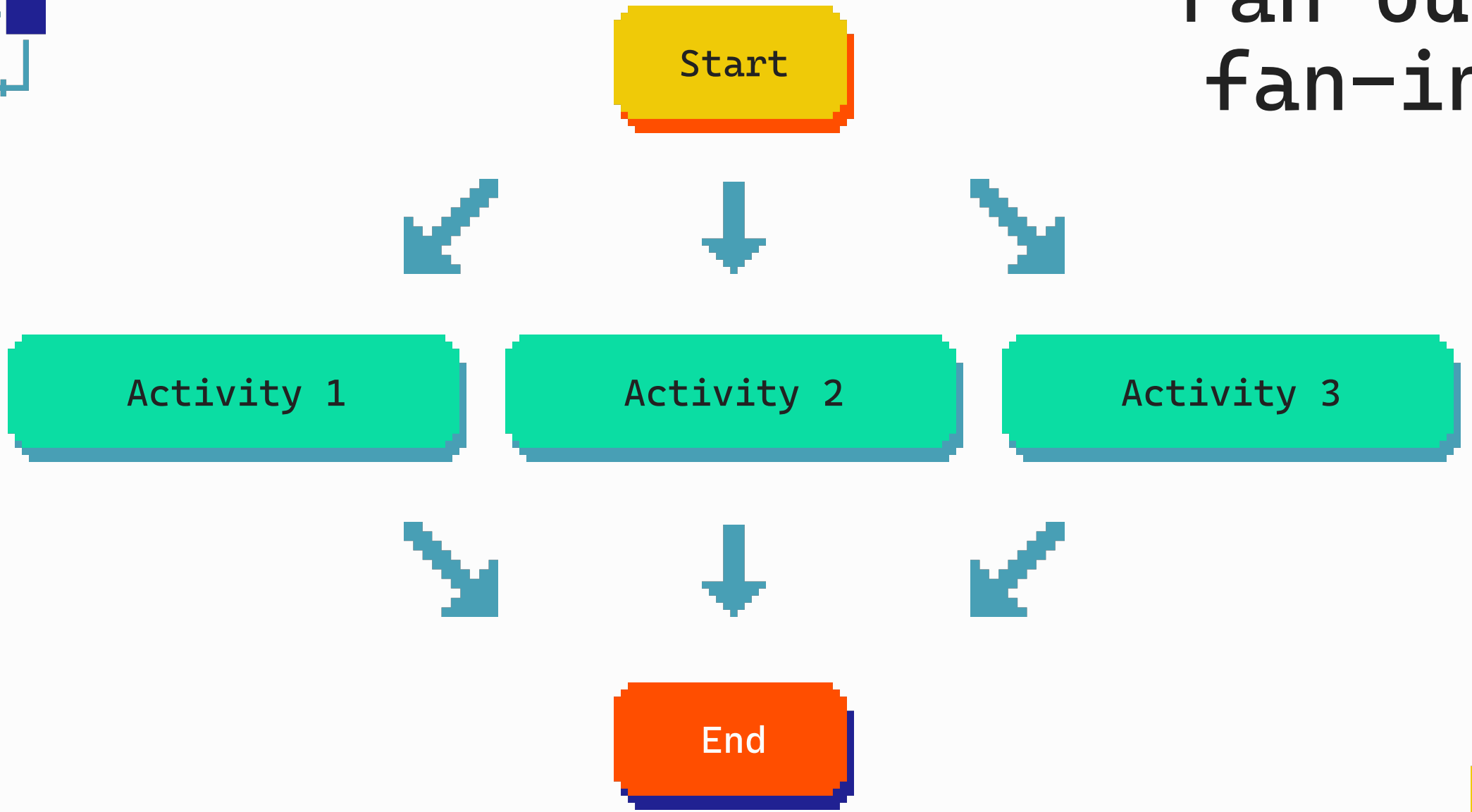
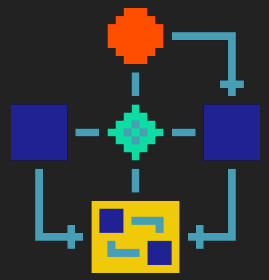
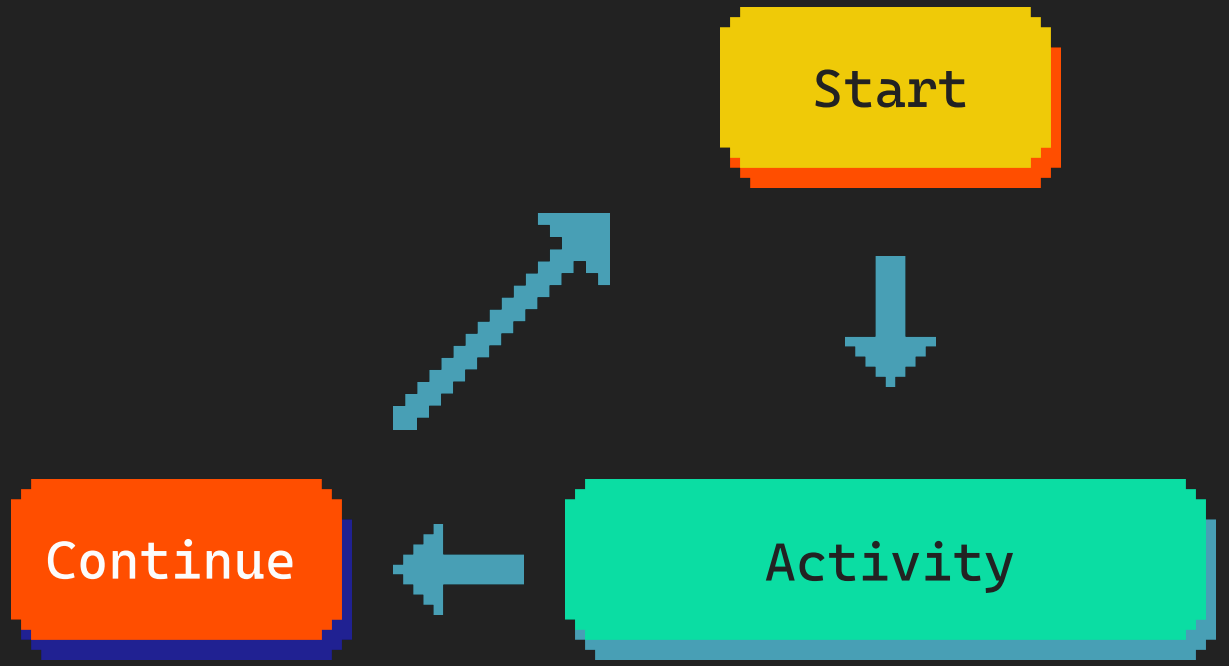
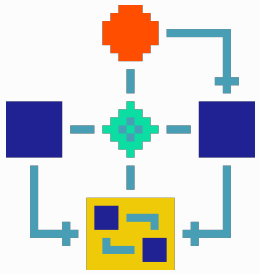




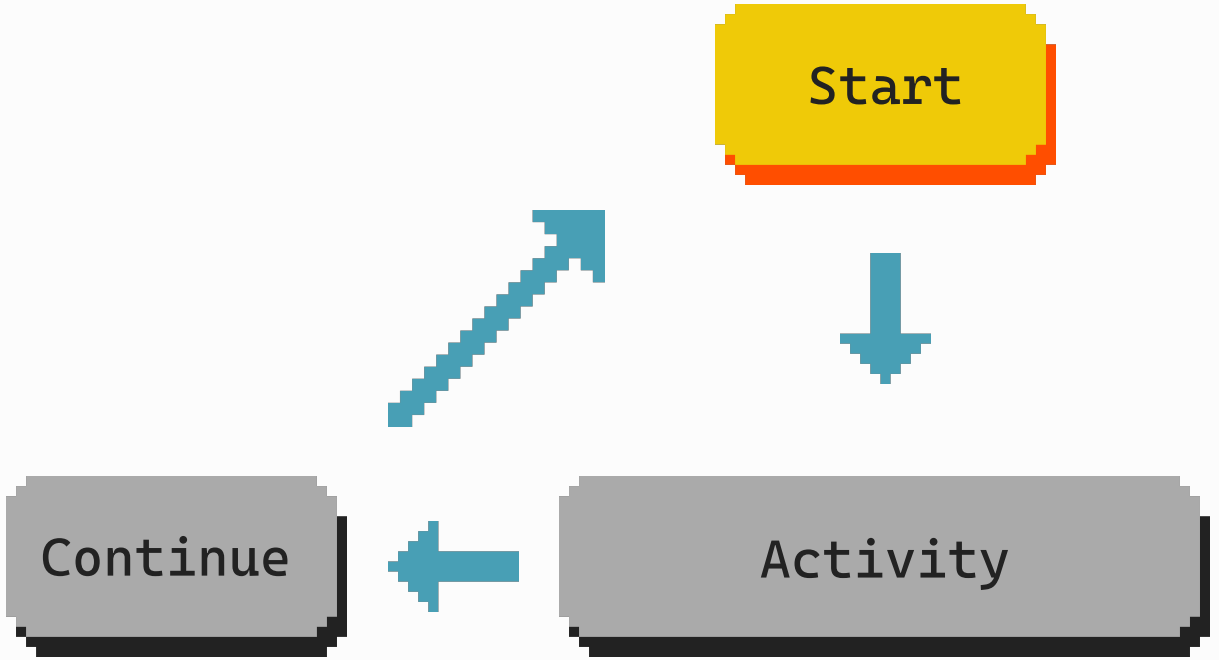
Workflows

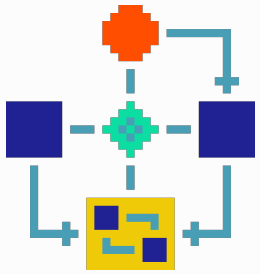
Monitor



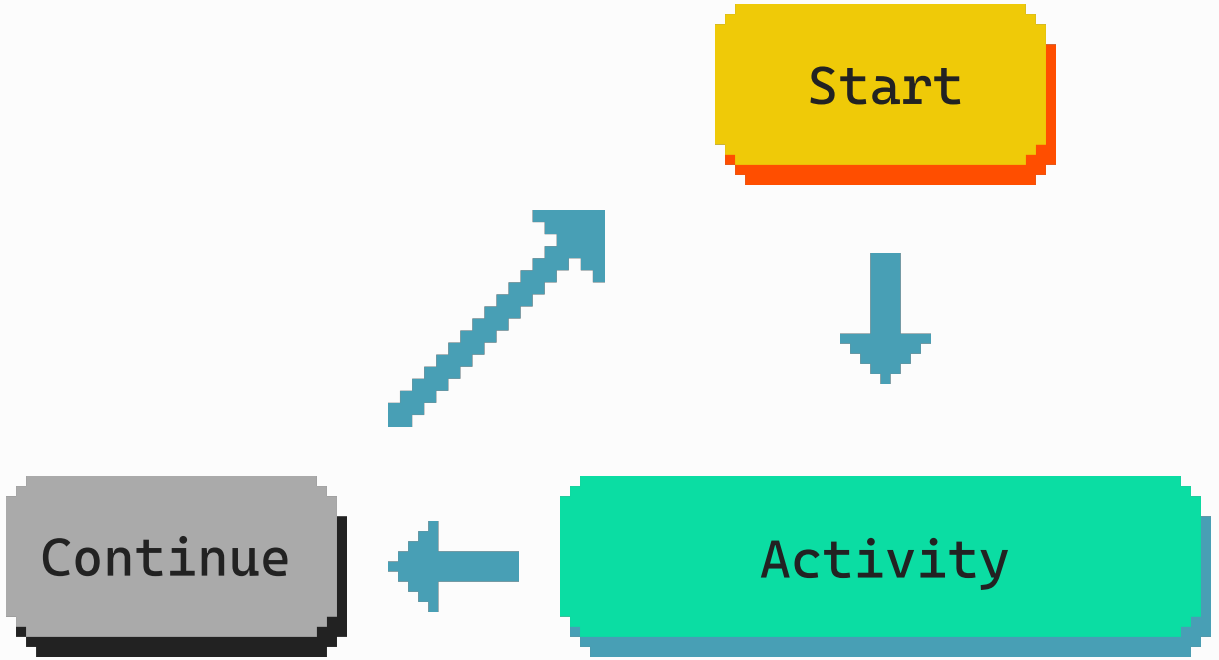


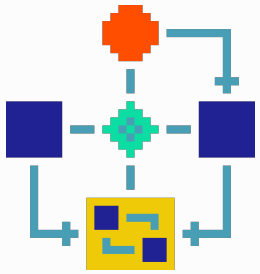
Monitor





Monitor





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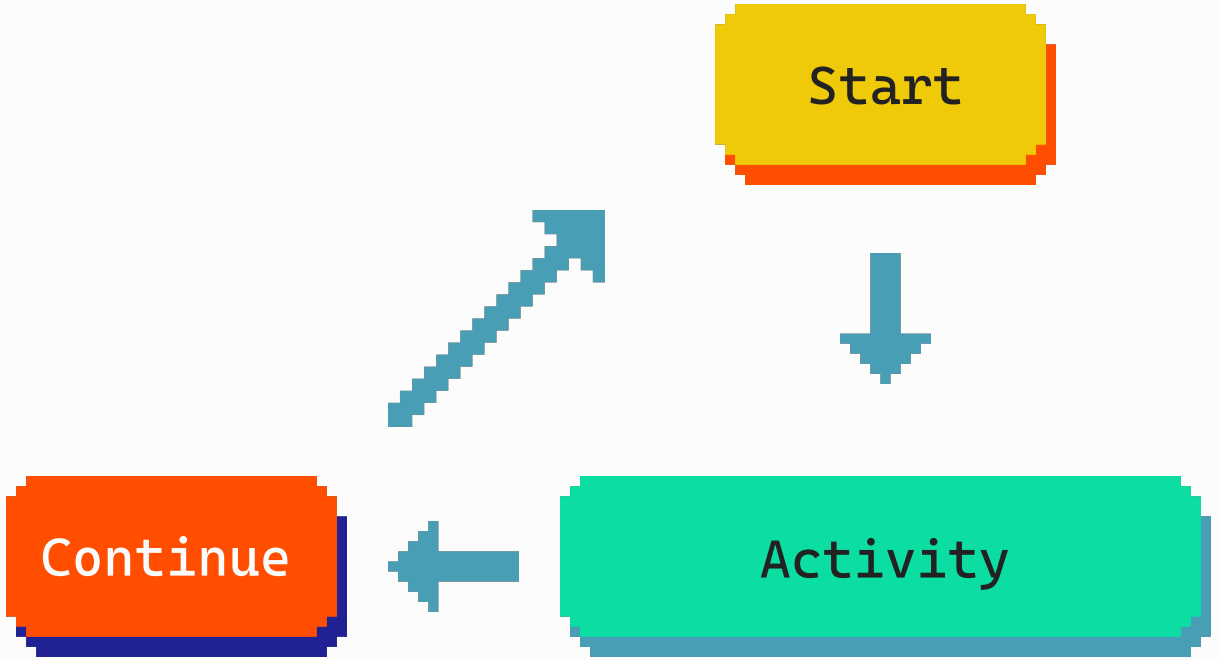
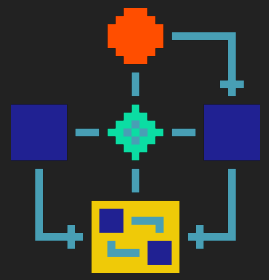
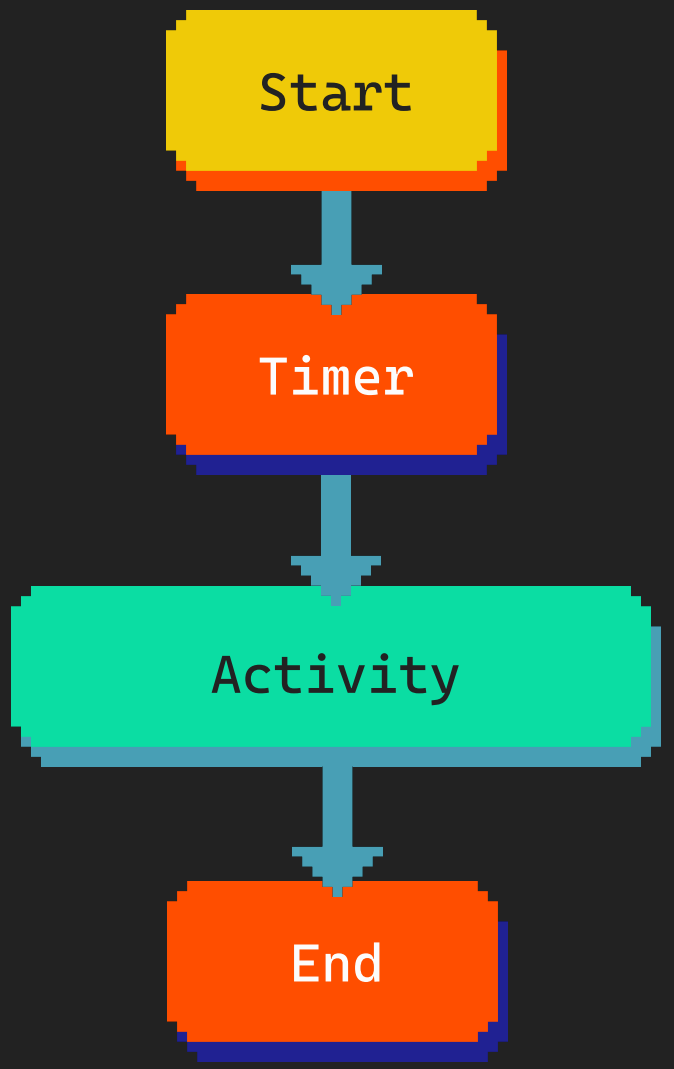
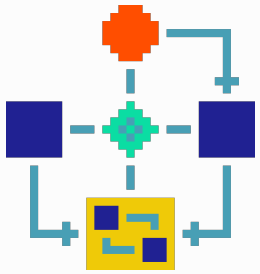




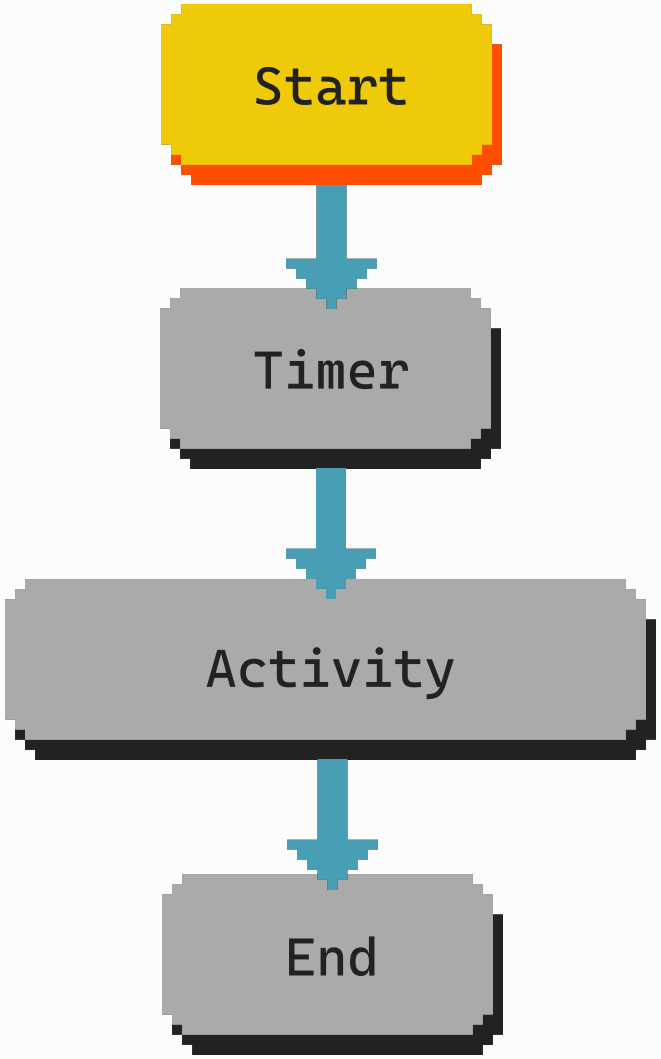
Workflows

Timer





Timer



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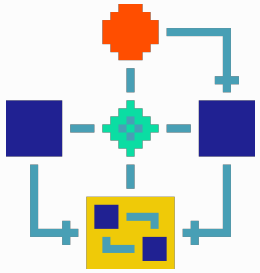
dapr



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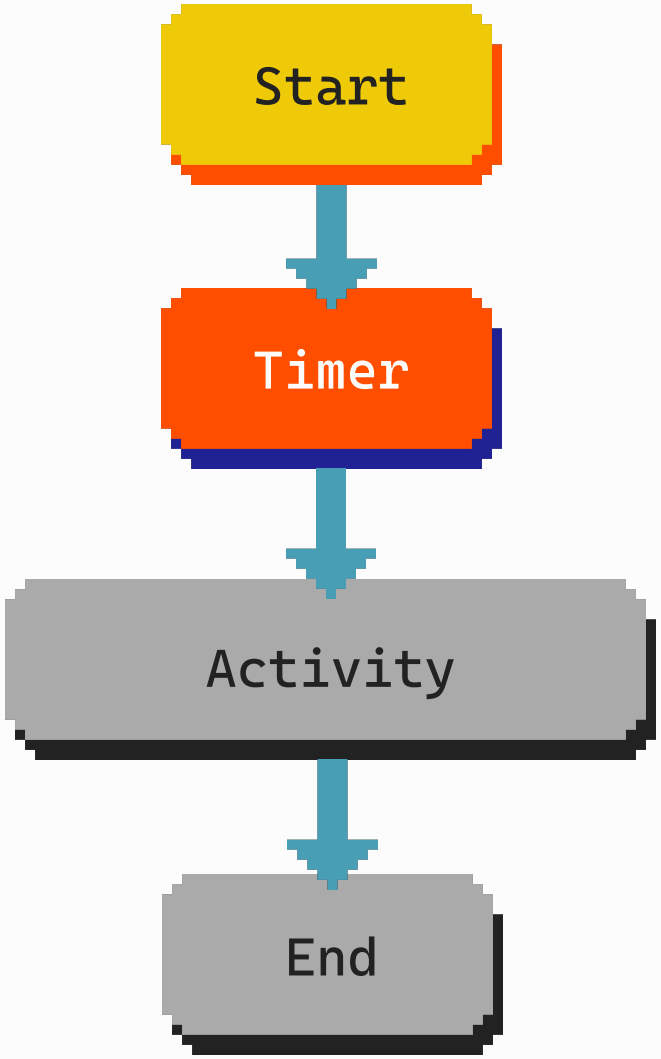
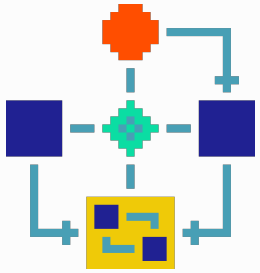
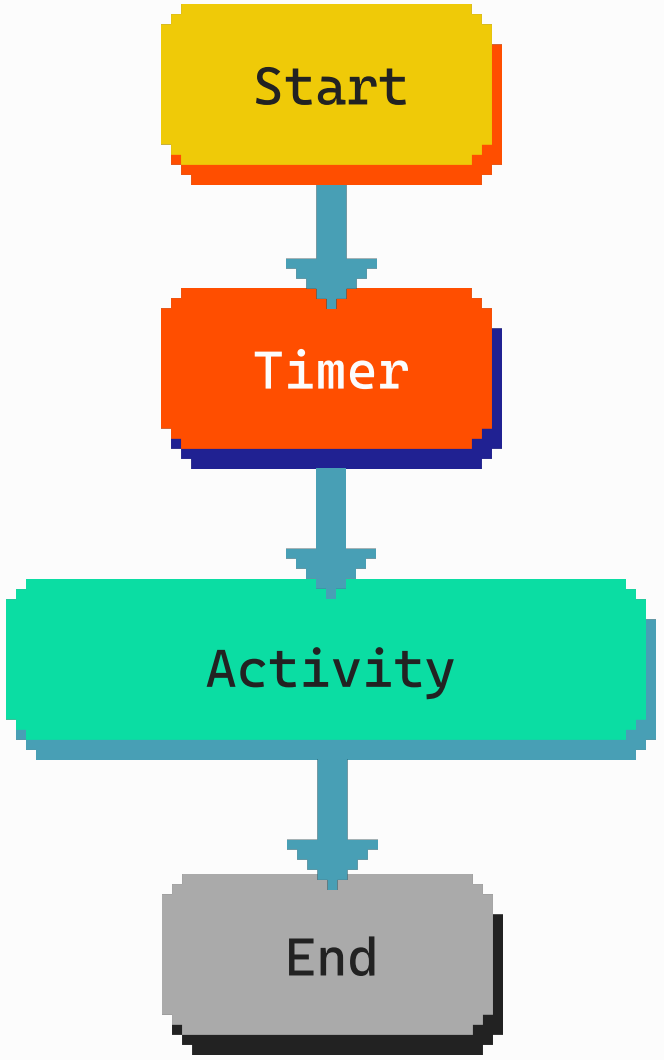
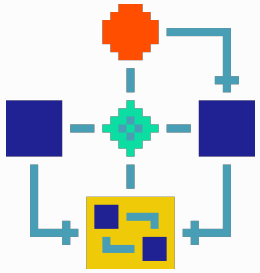




Timer





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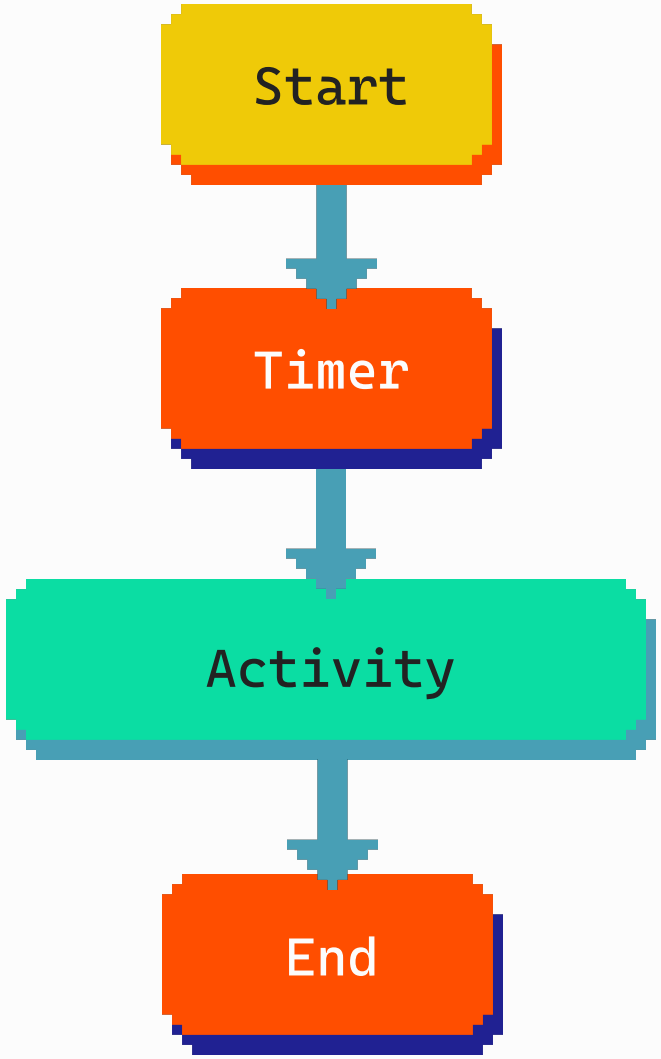
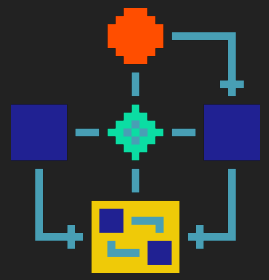
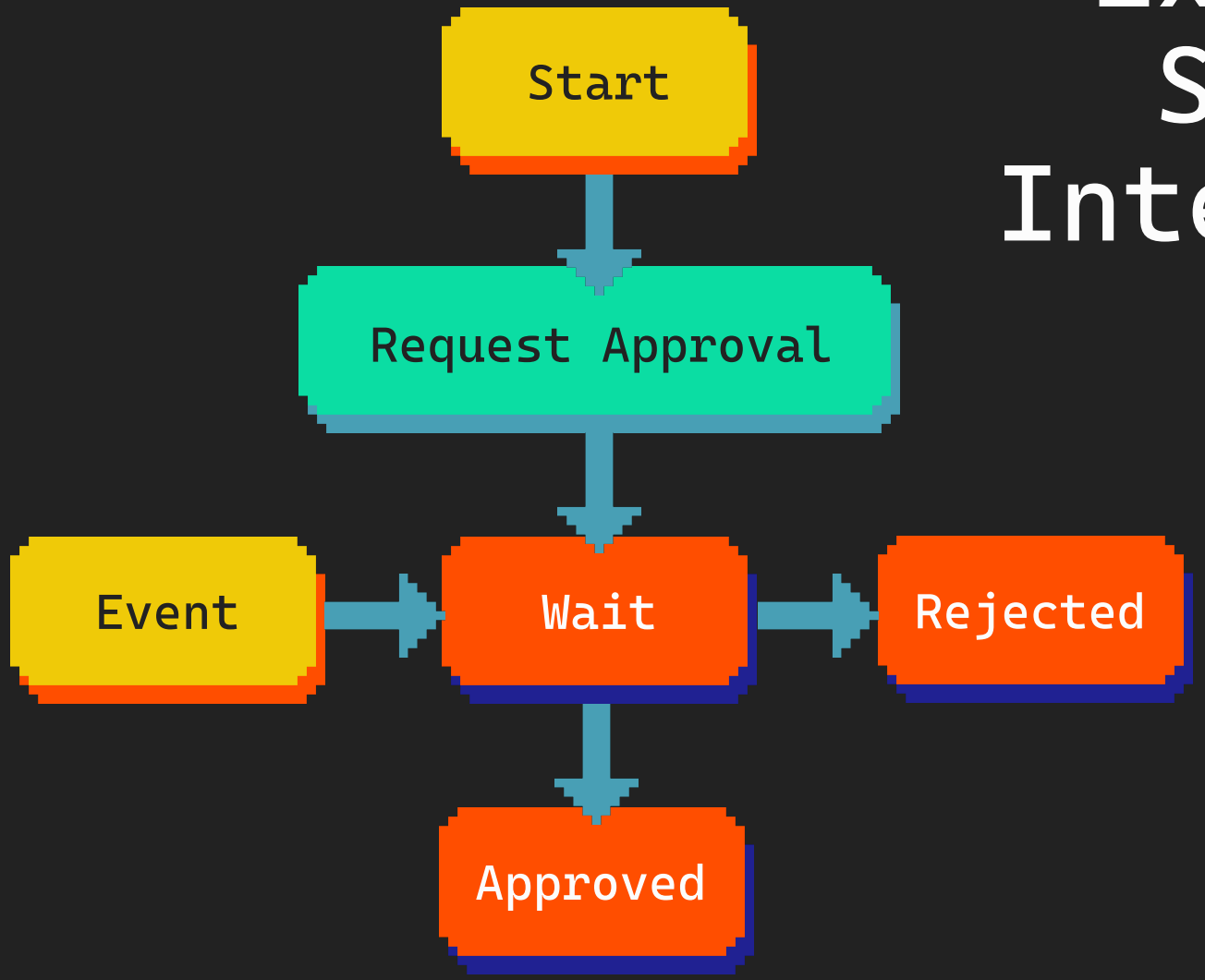
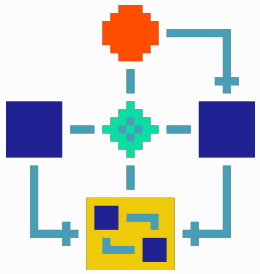




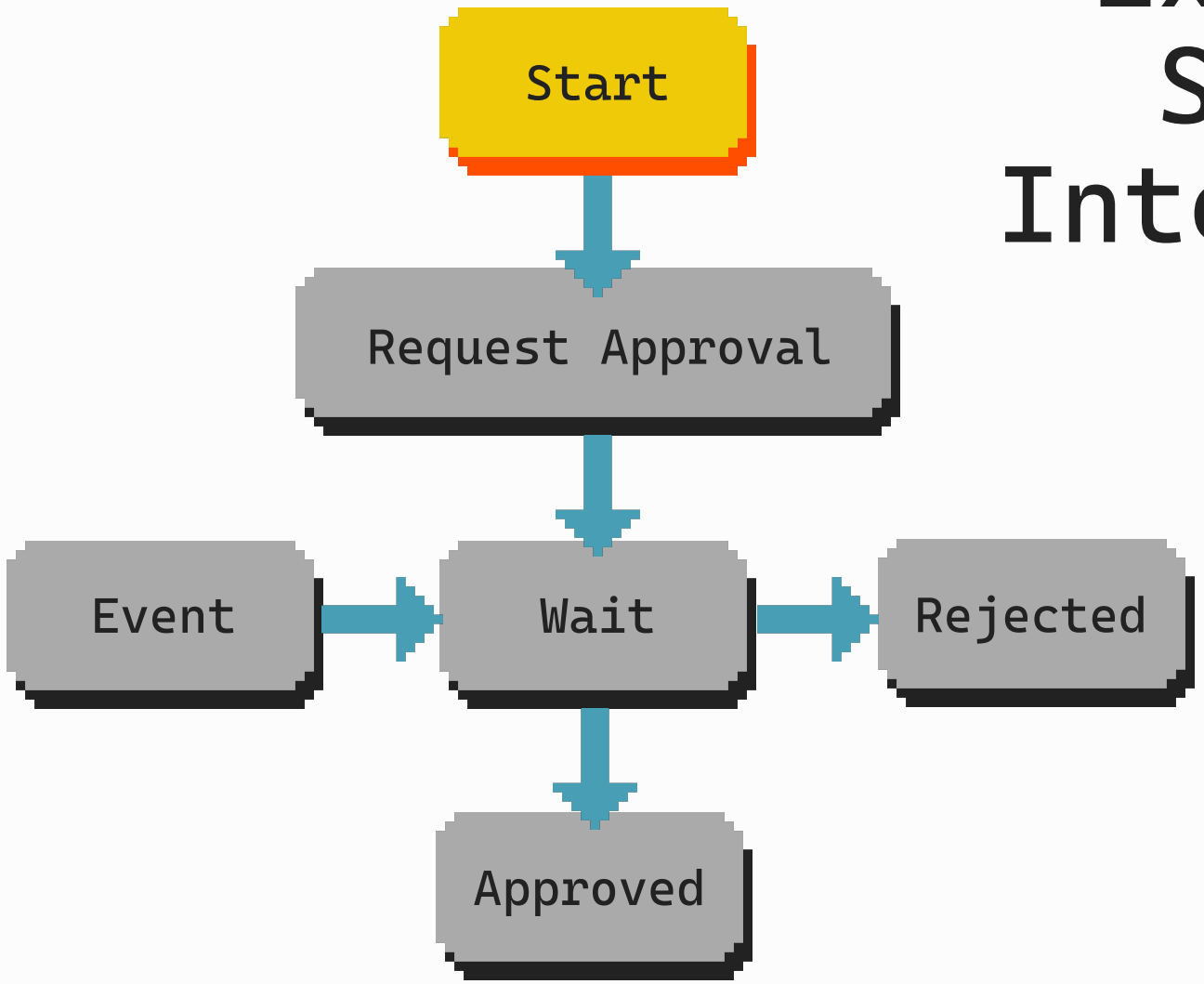
Workflows

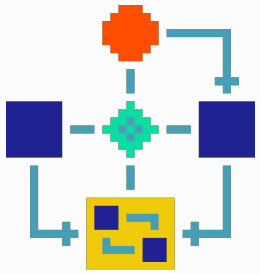
External System Interaction



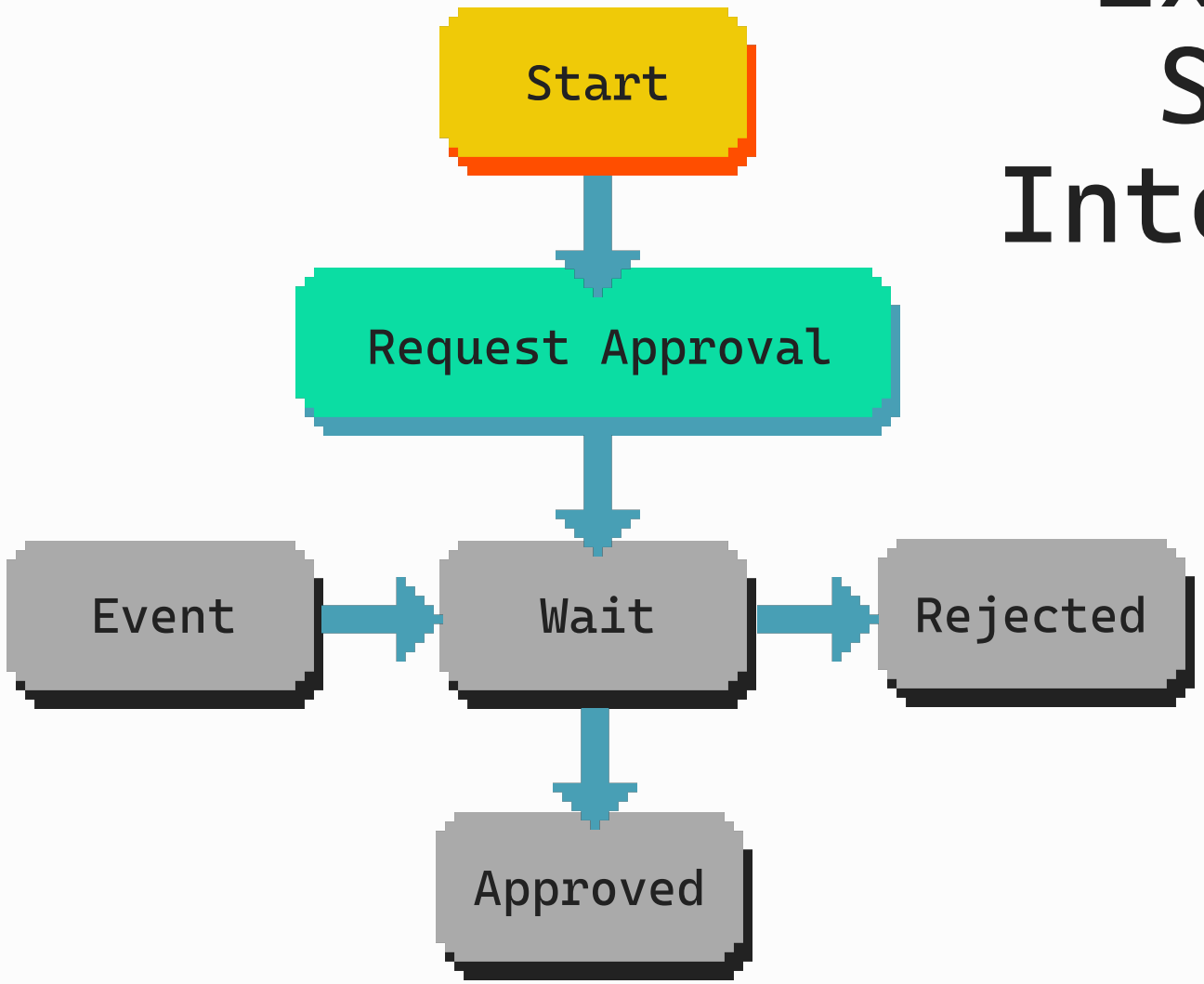


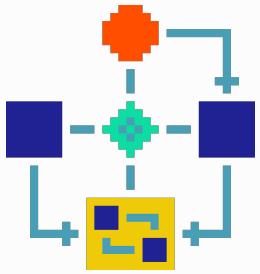
External System Interaction



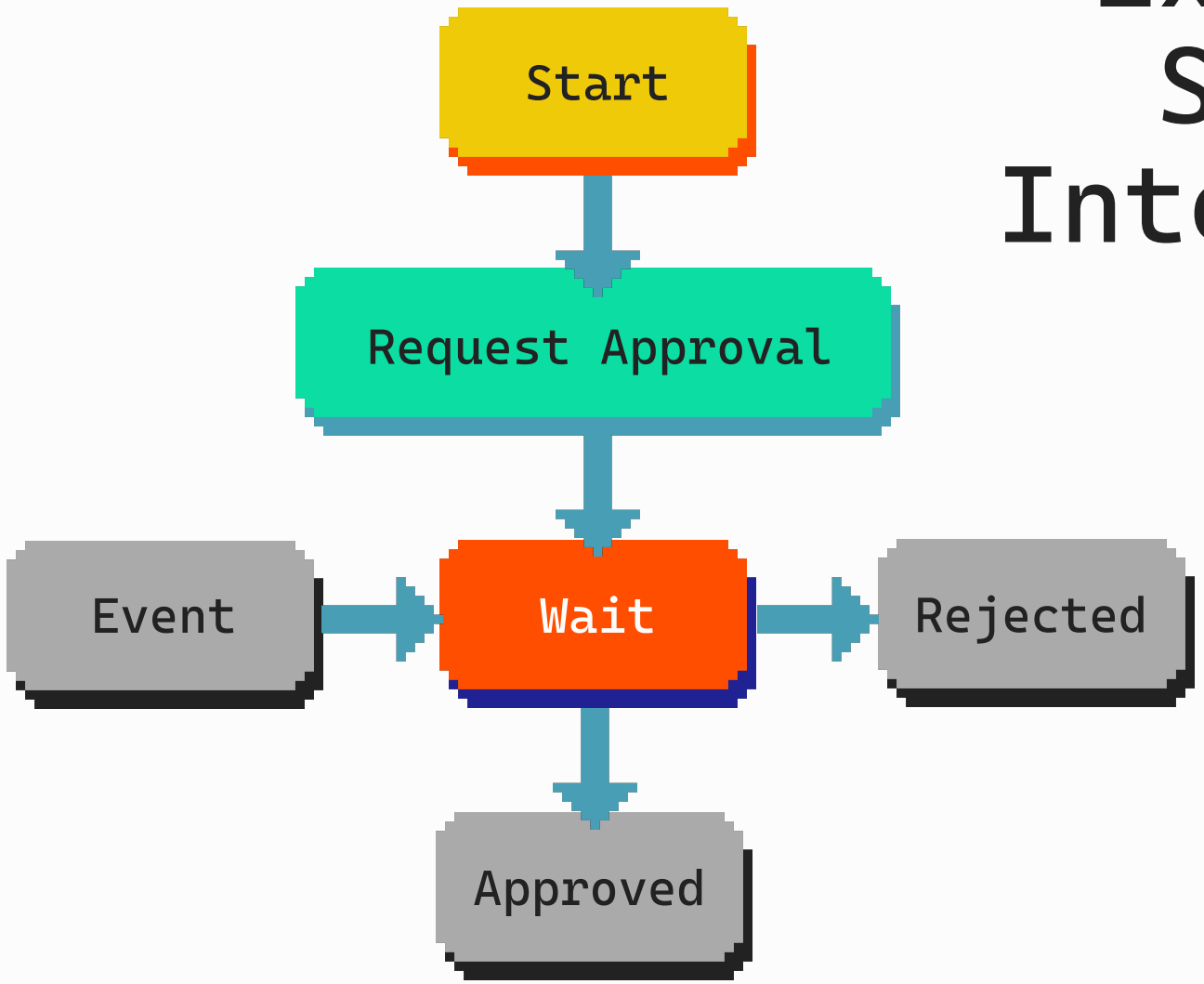


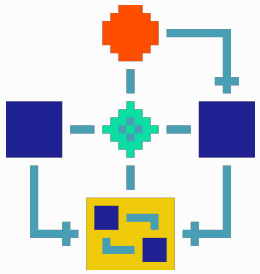
External System Interaction



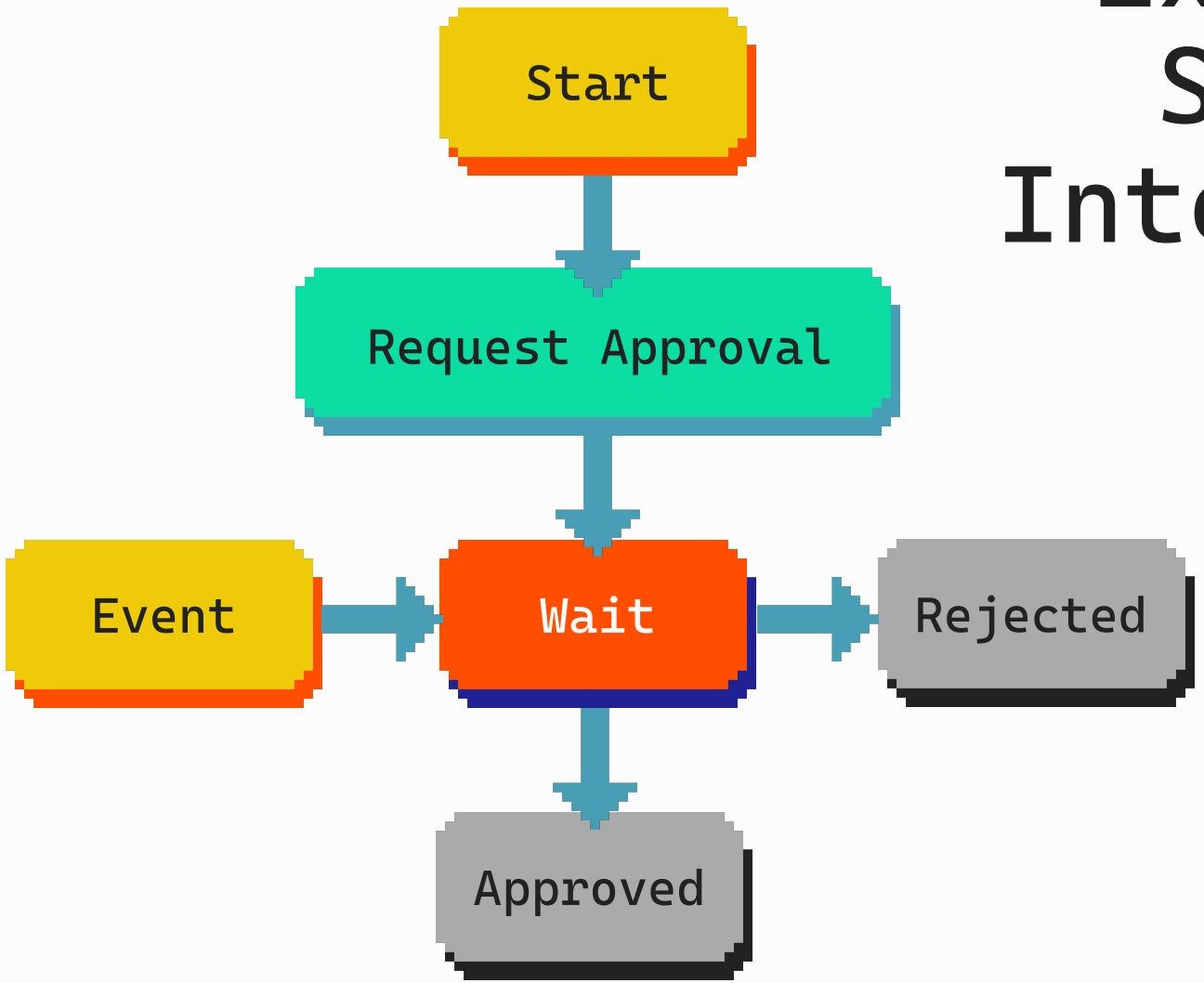


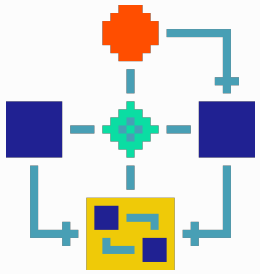
External System Interaction



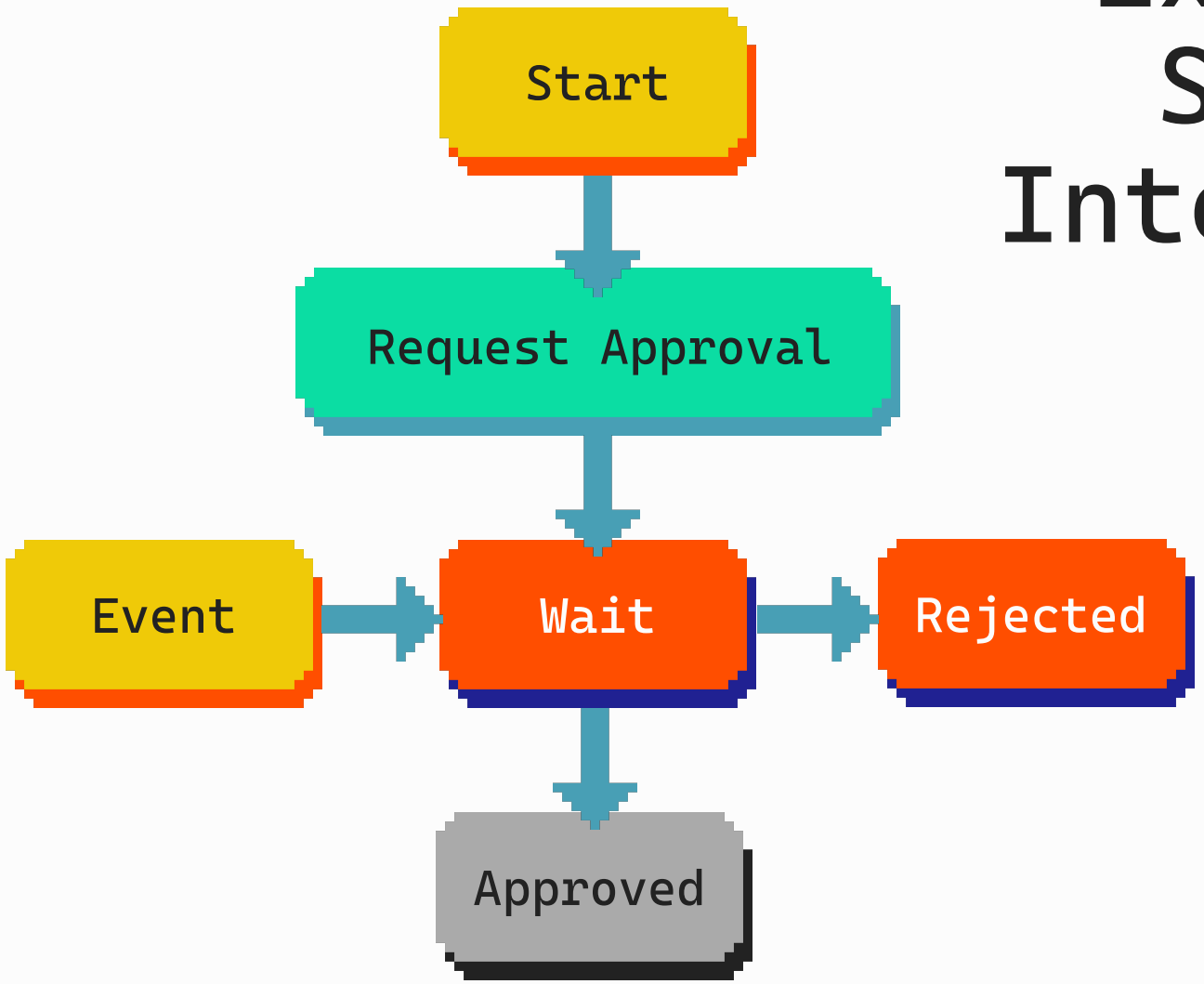


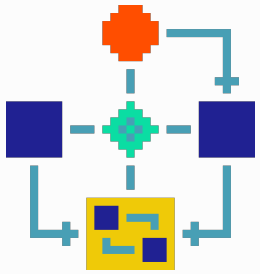
External System Interaction



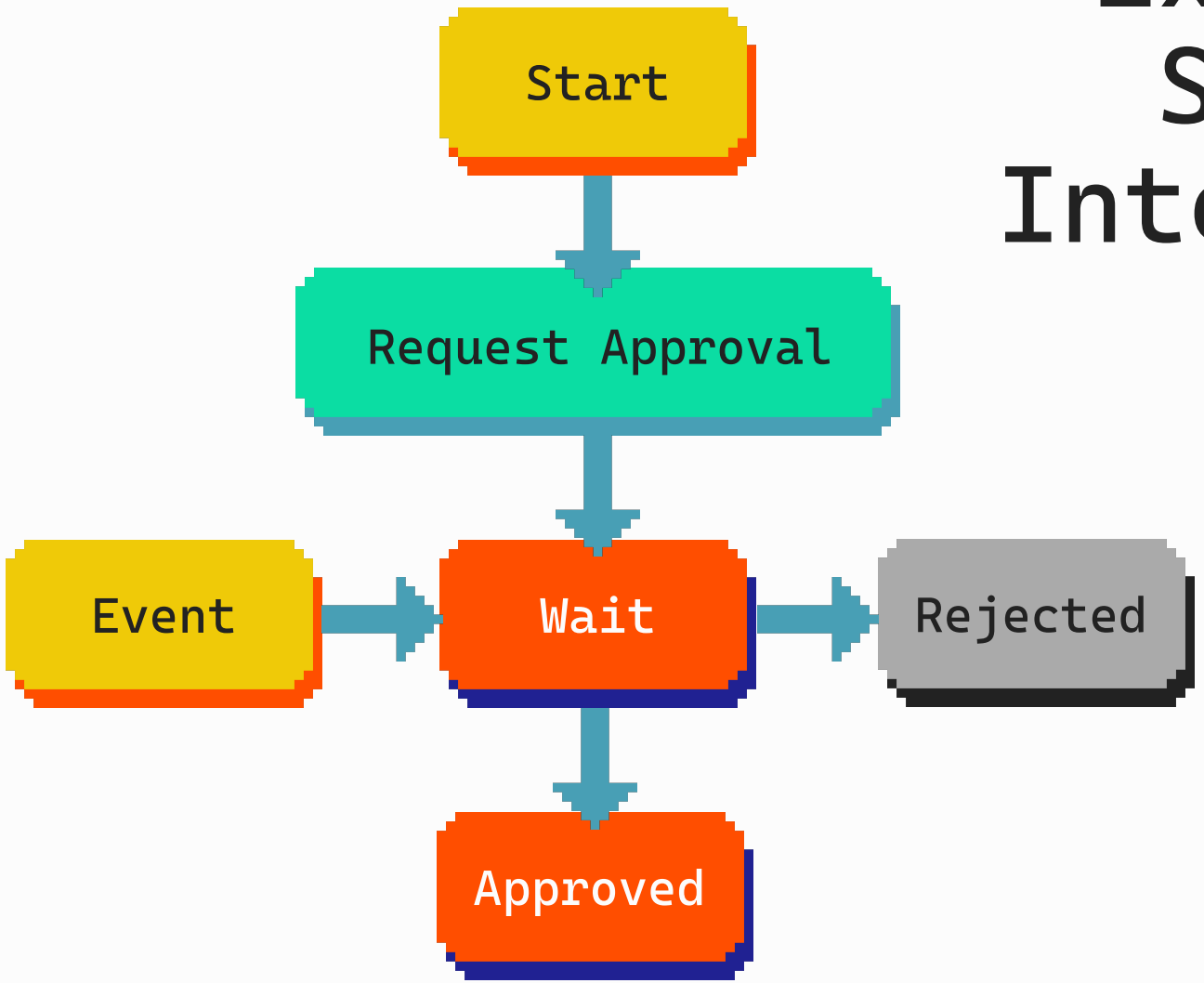


External System Interaction

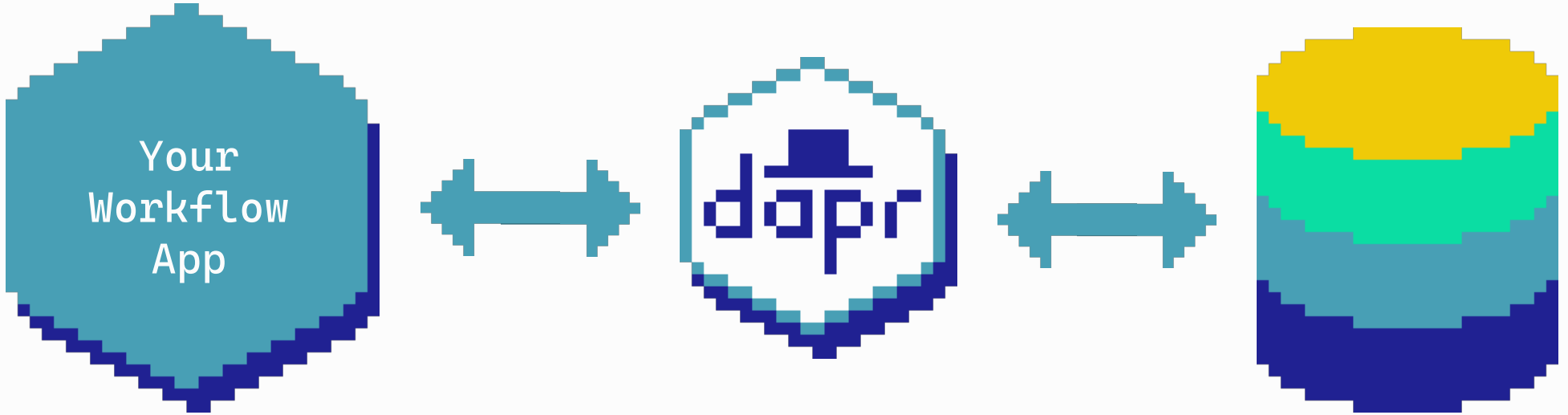




External System Interaction

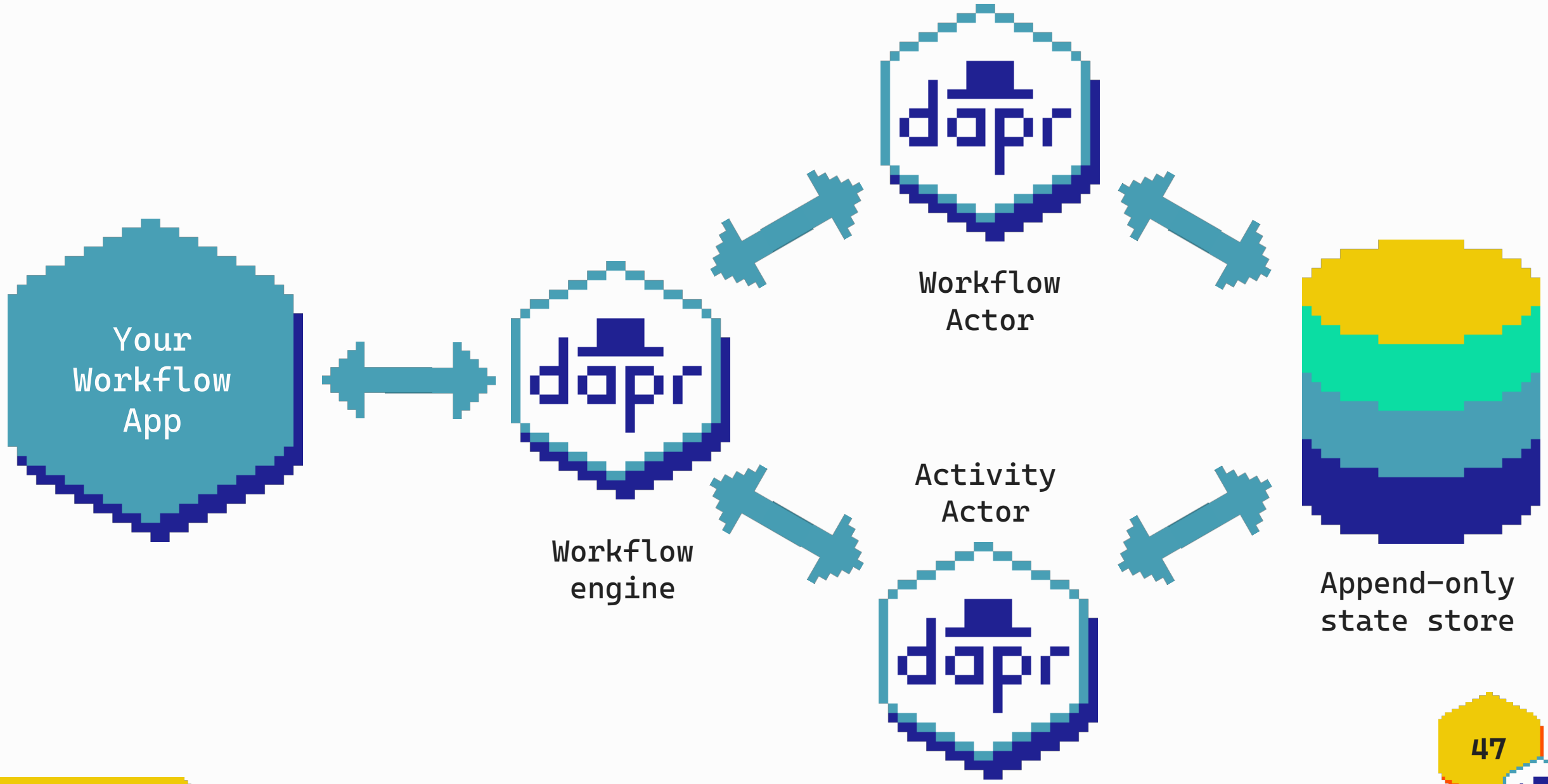


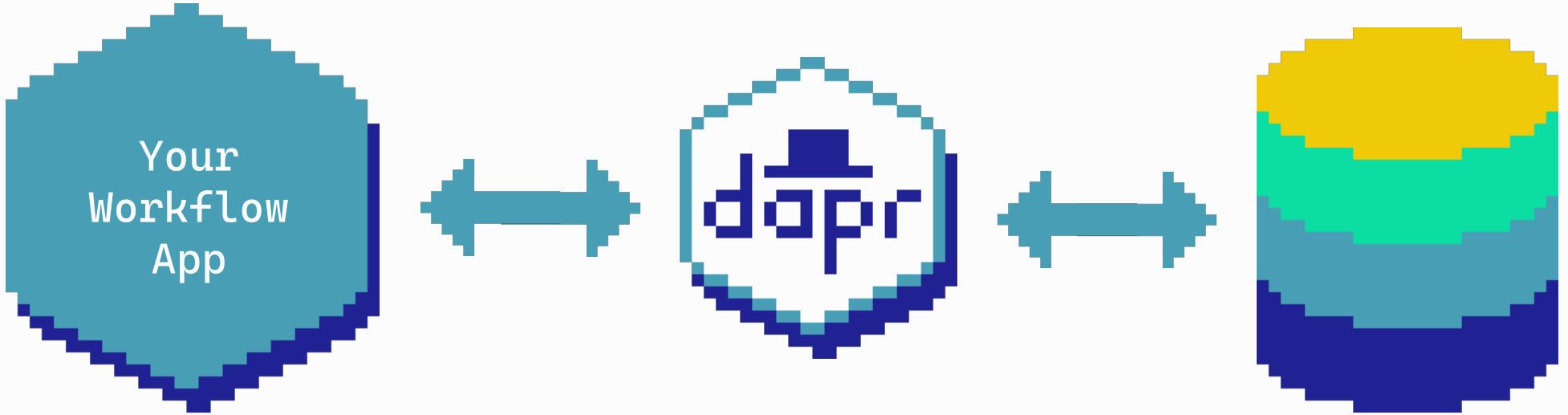
The workflow engine



Workflow
engine

Append-only
state store

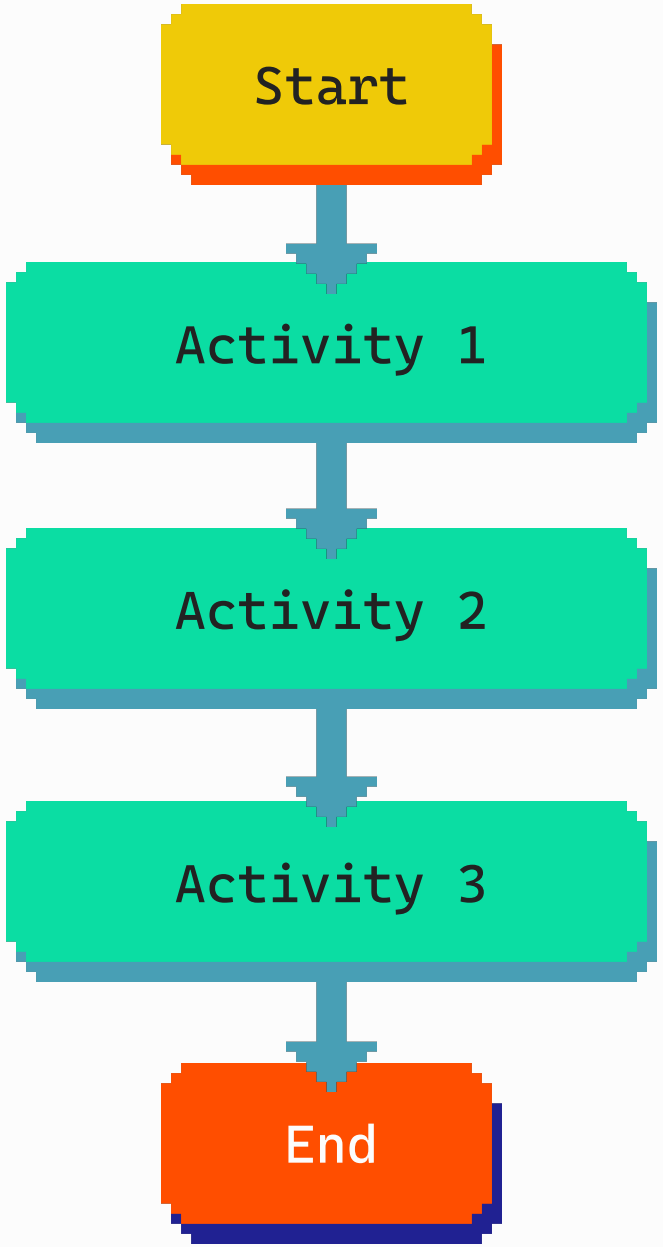

Your
Workflow
App
dapr
Workflow
engine
dapr
Workflow
Actor
Activity
Actor
dapr
Append-only
state store



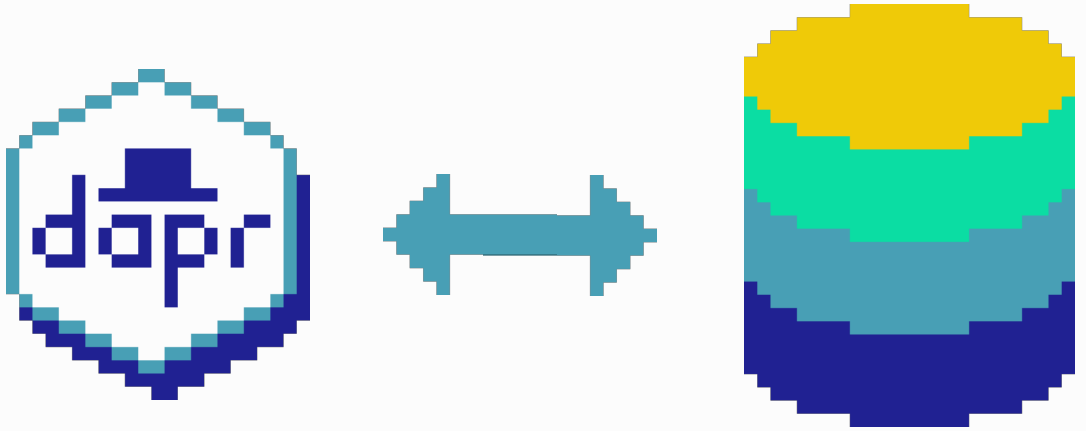
Contains definition of a sequence of activities

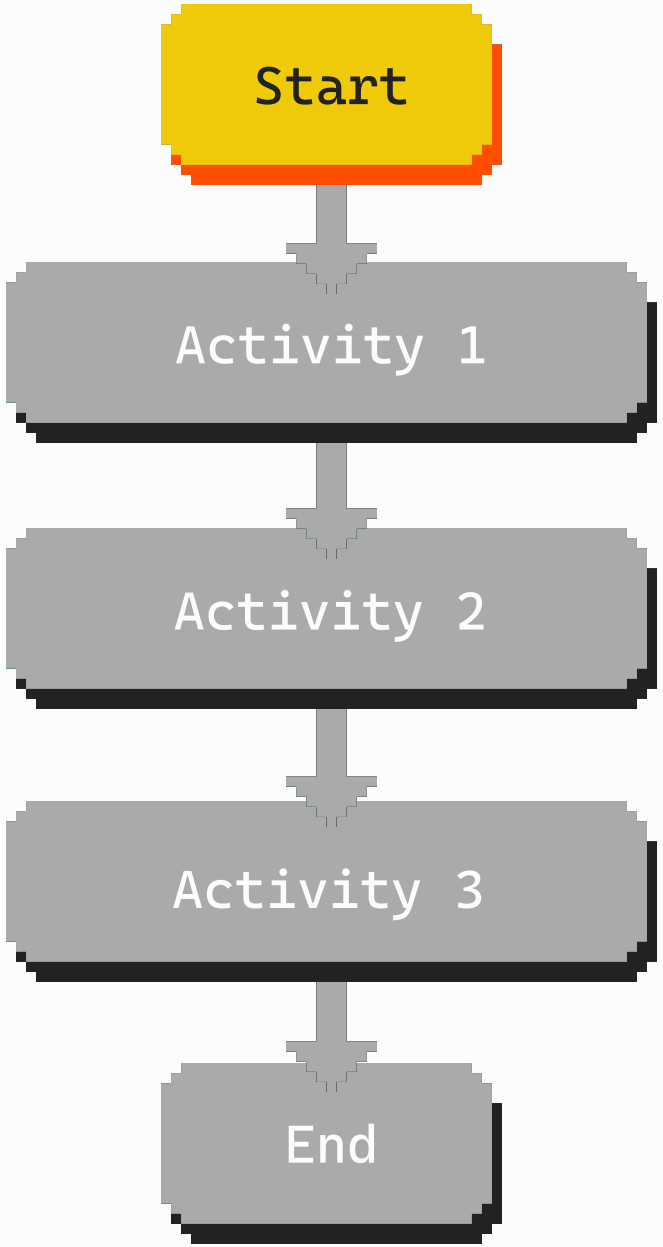
Schedules and manages activity executions (incl resiliency)

Contains workflow state, input and outputs of activities

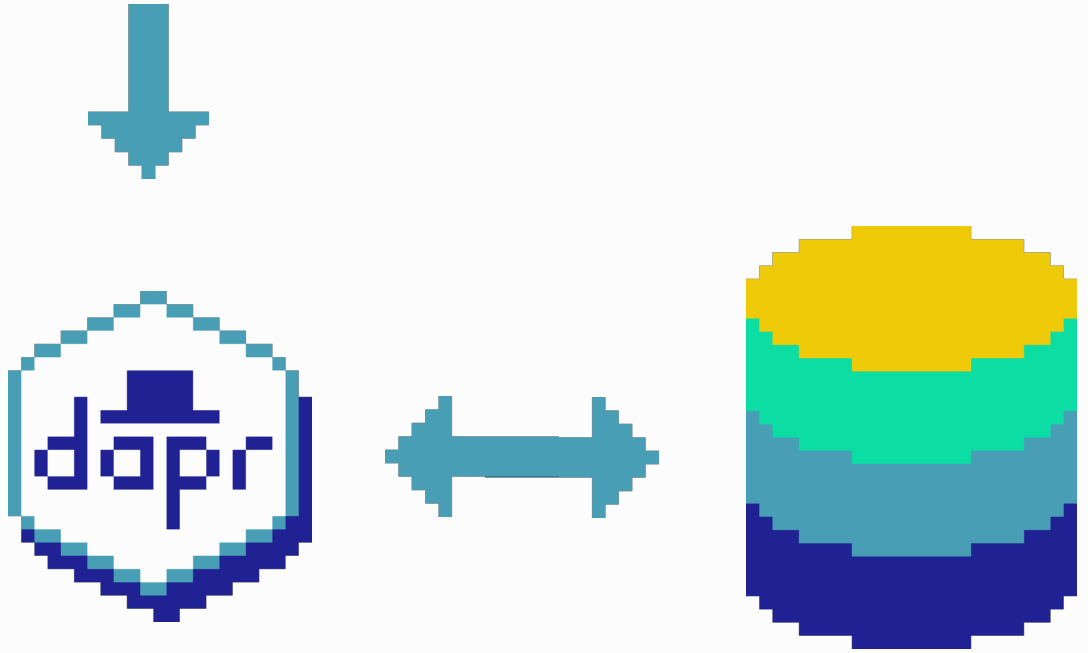


Replay & checkpointing

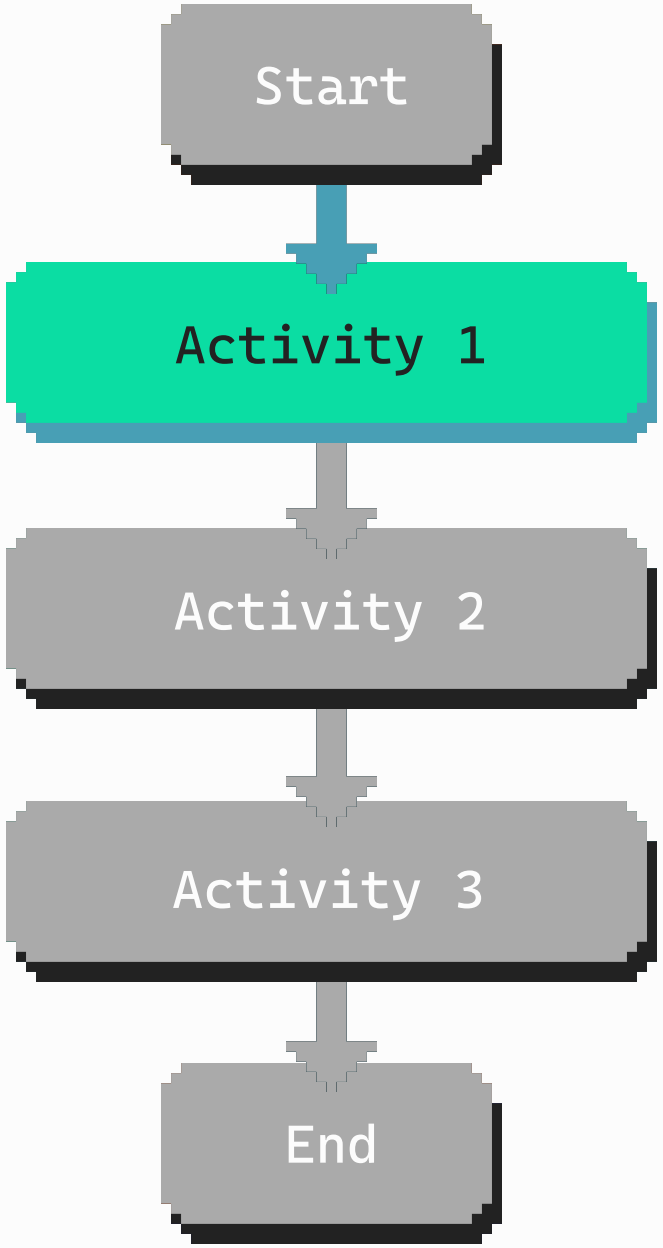




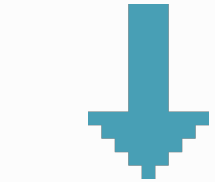
Start Workflow

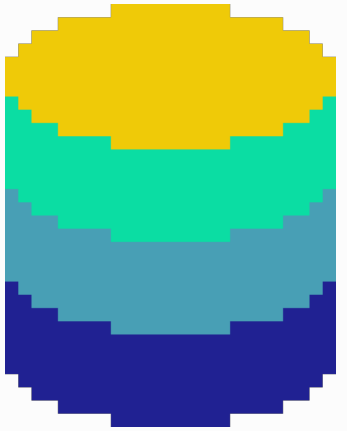


Store start & input



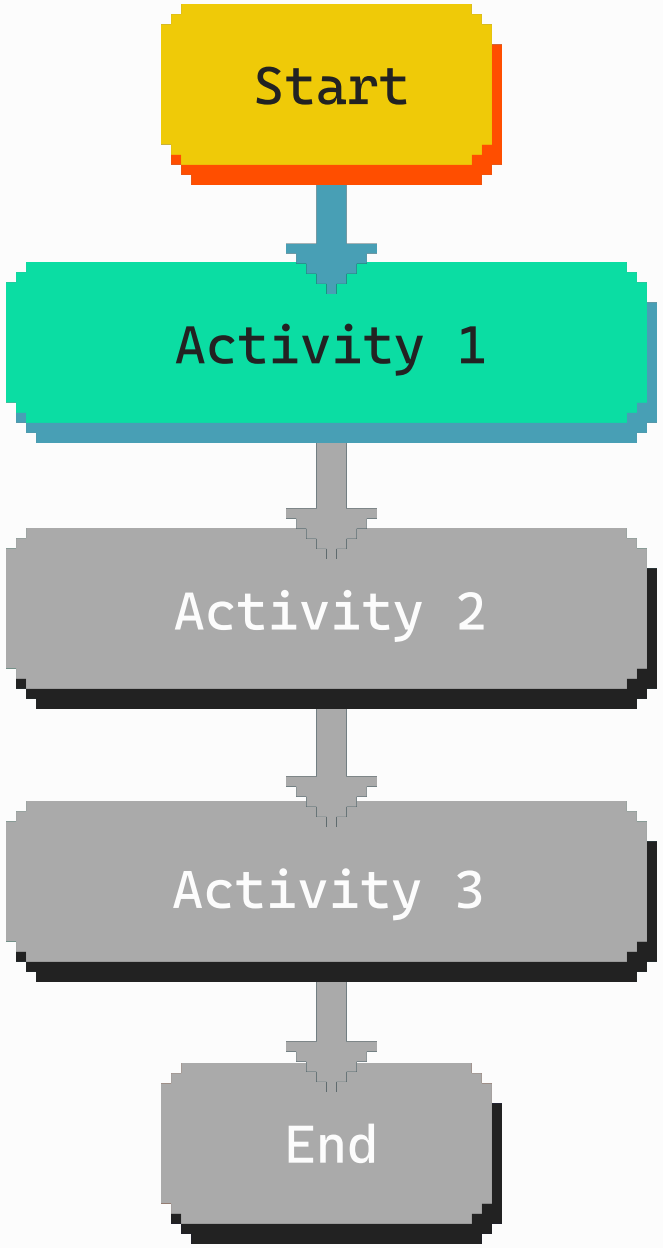
Schedule & execute
Activity 1



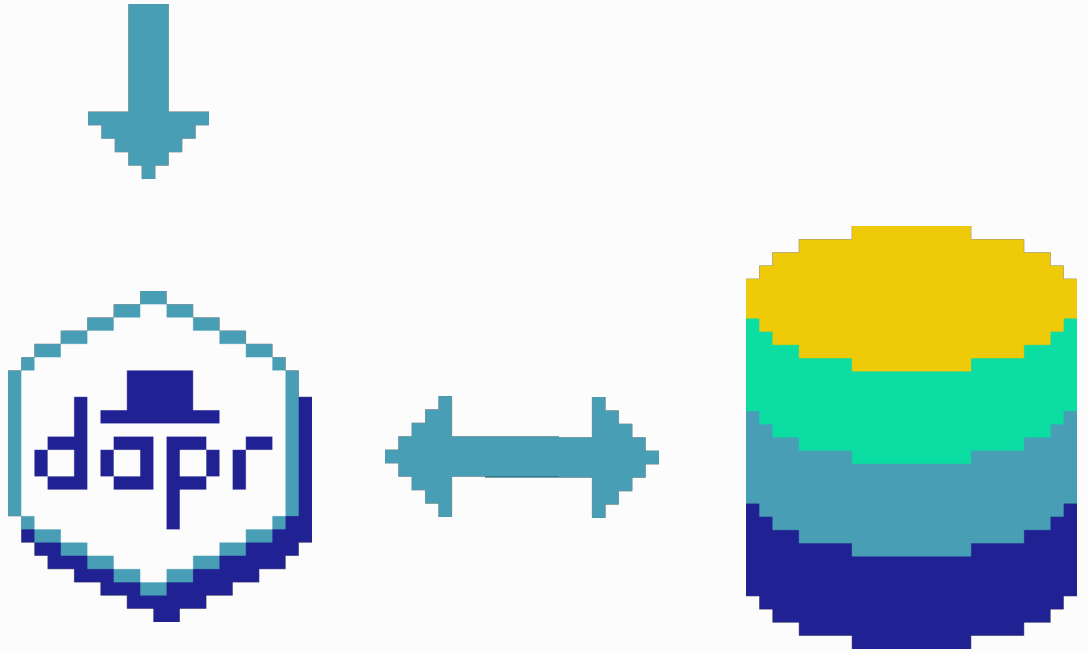


Store input
& output

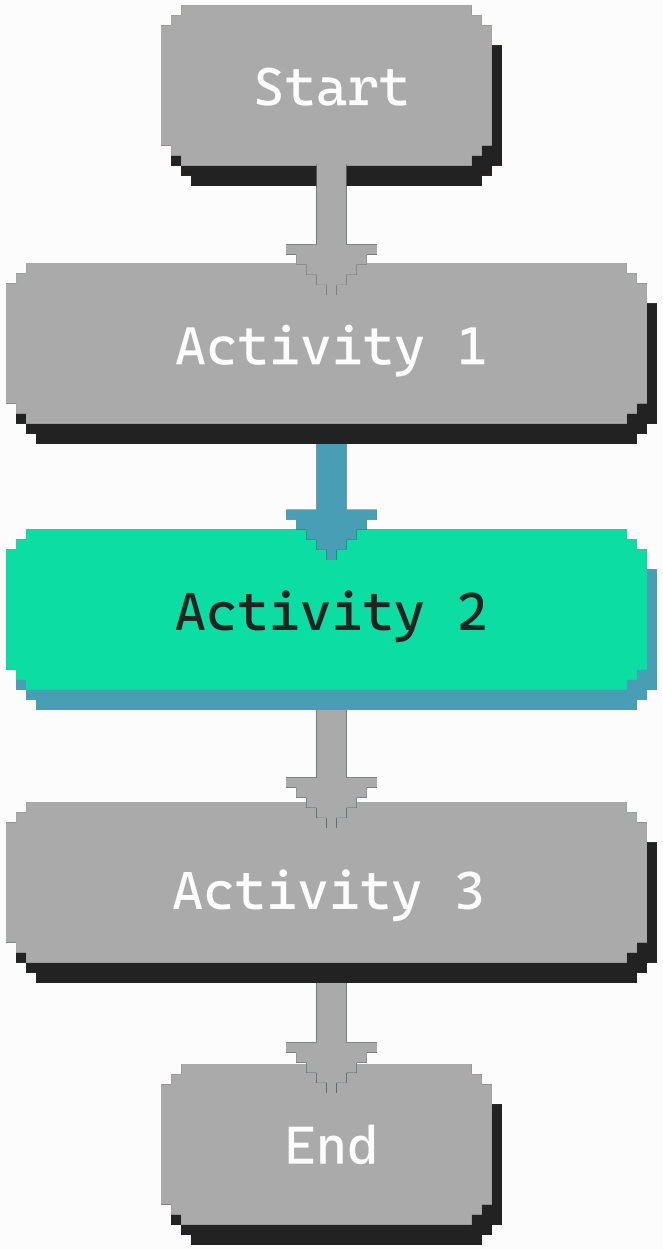
@marcduiker



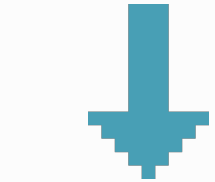
Replay Workflow

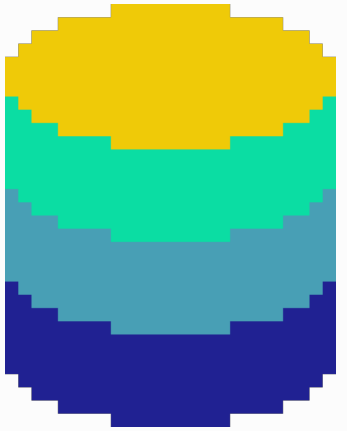


Activity 1 has
been executed already



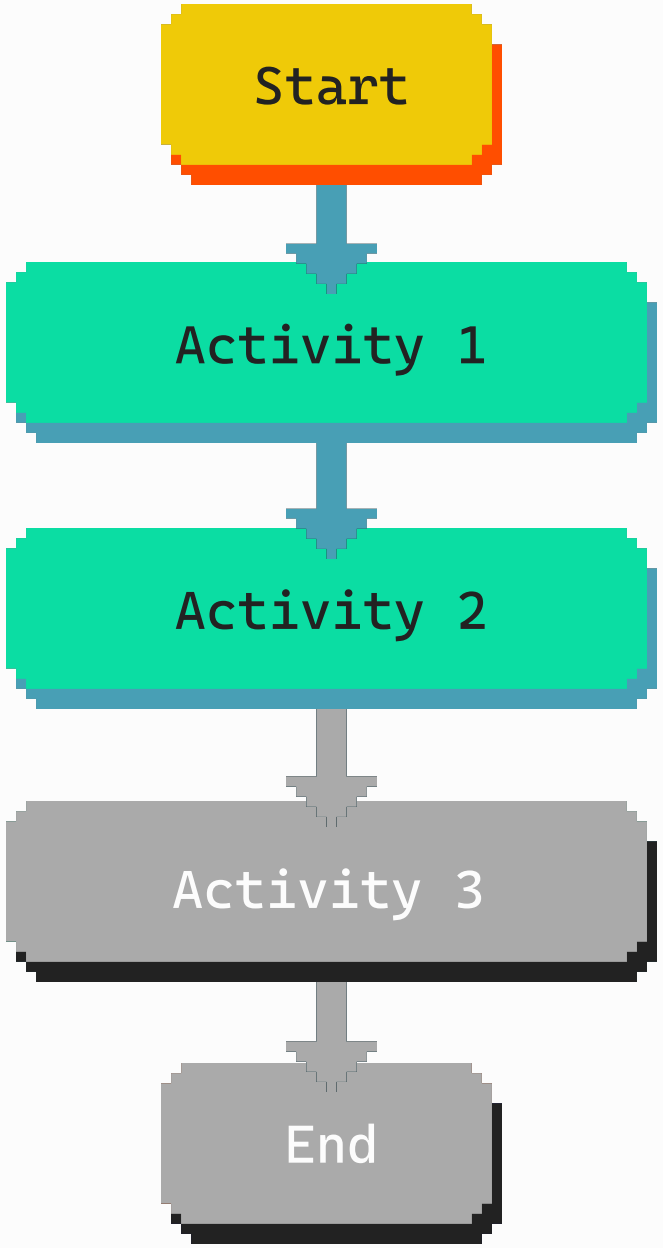
Schedule & execute
Activity 2



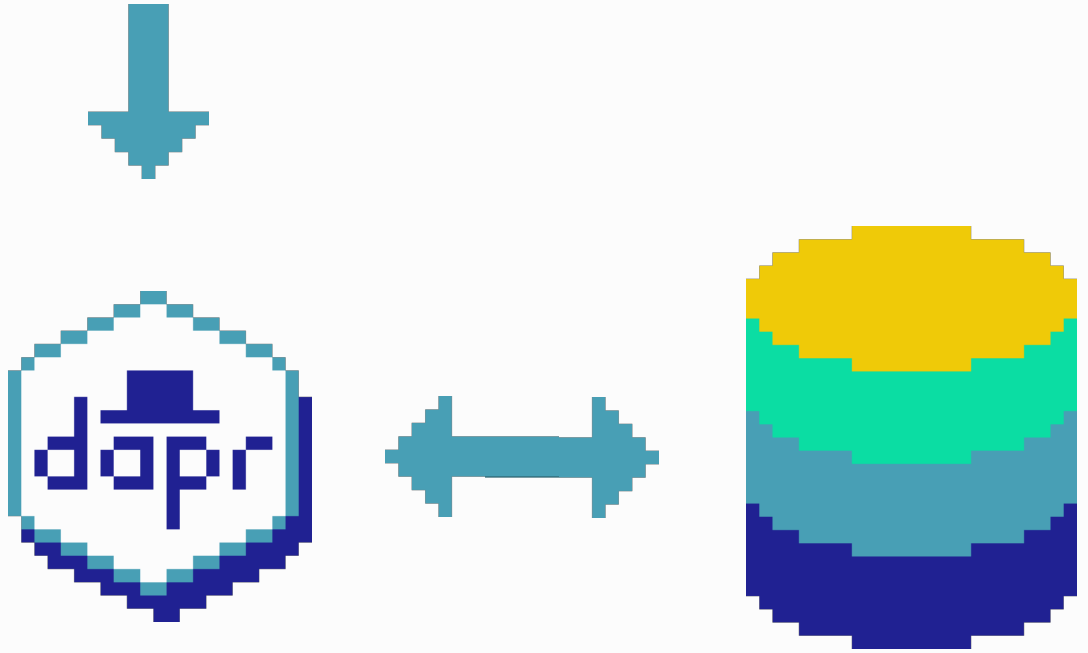


Store input
& output

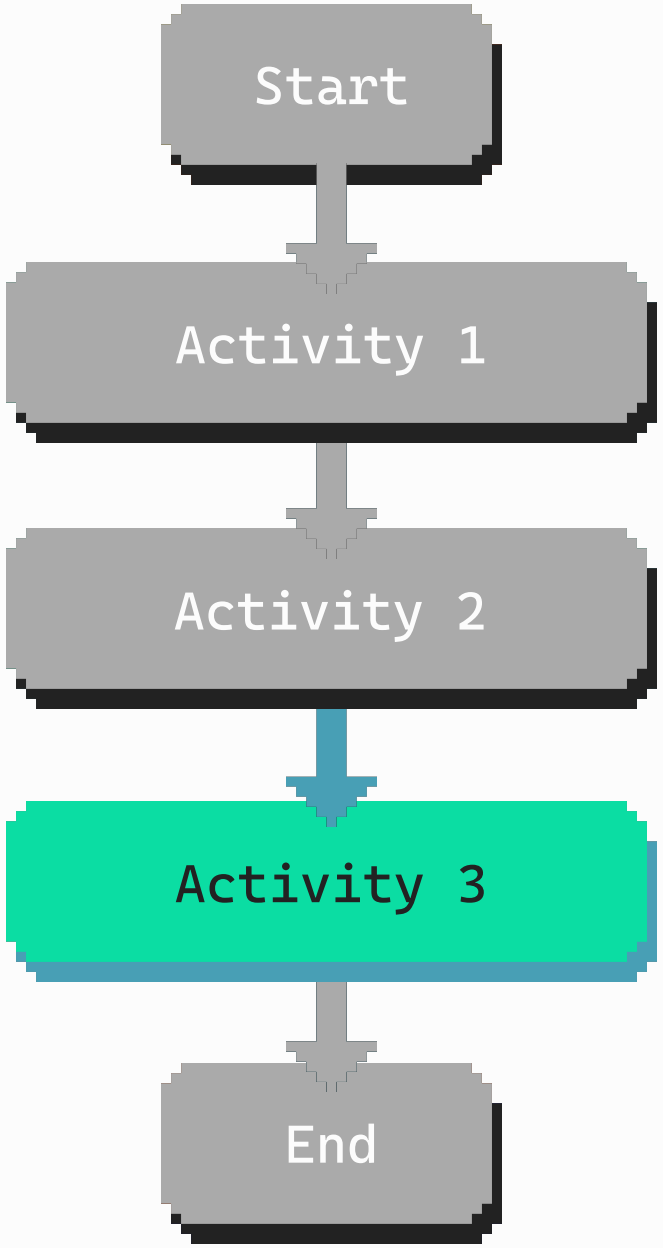
@marcduiker



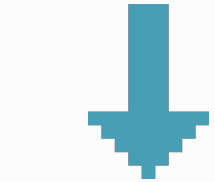
Replay Workflow

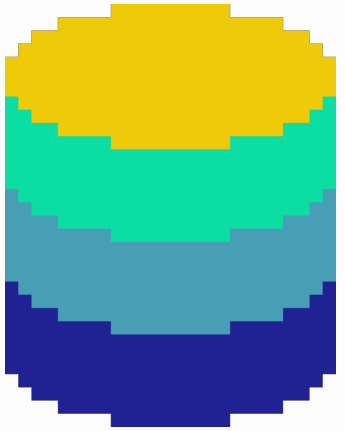


Activity 1 & 2 have
been executed already



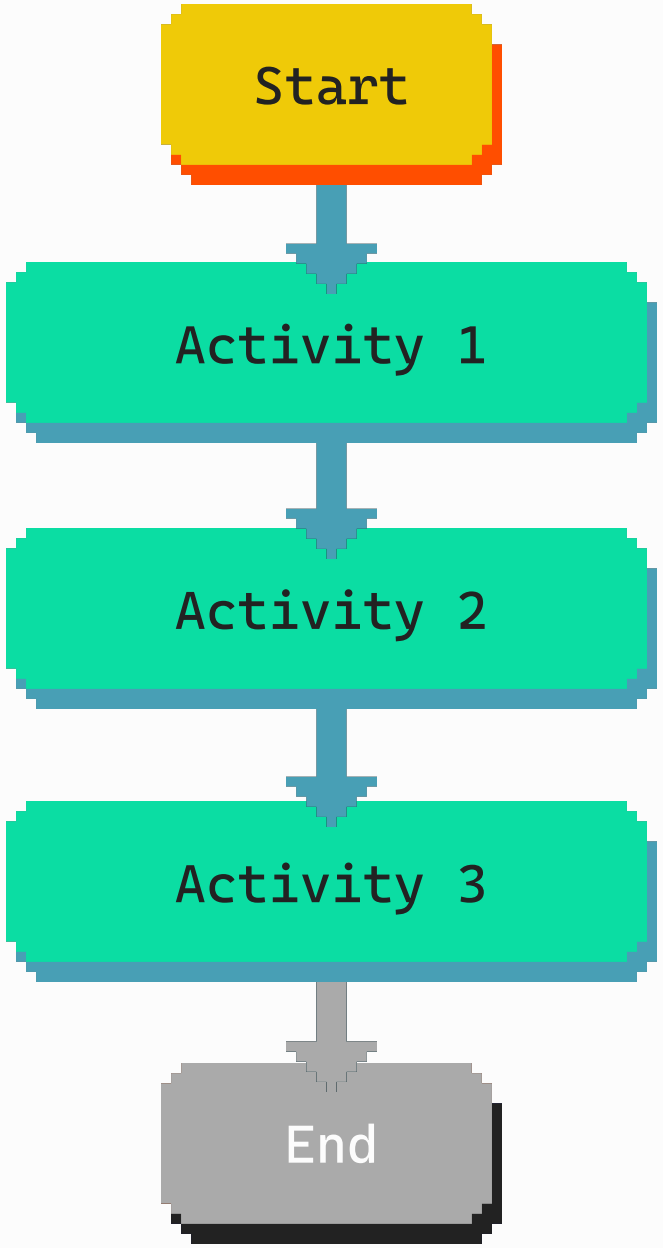
Schedule & execute
Activity 3



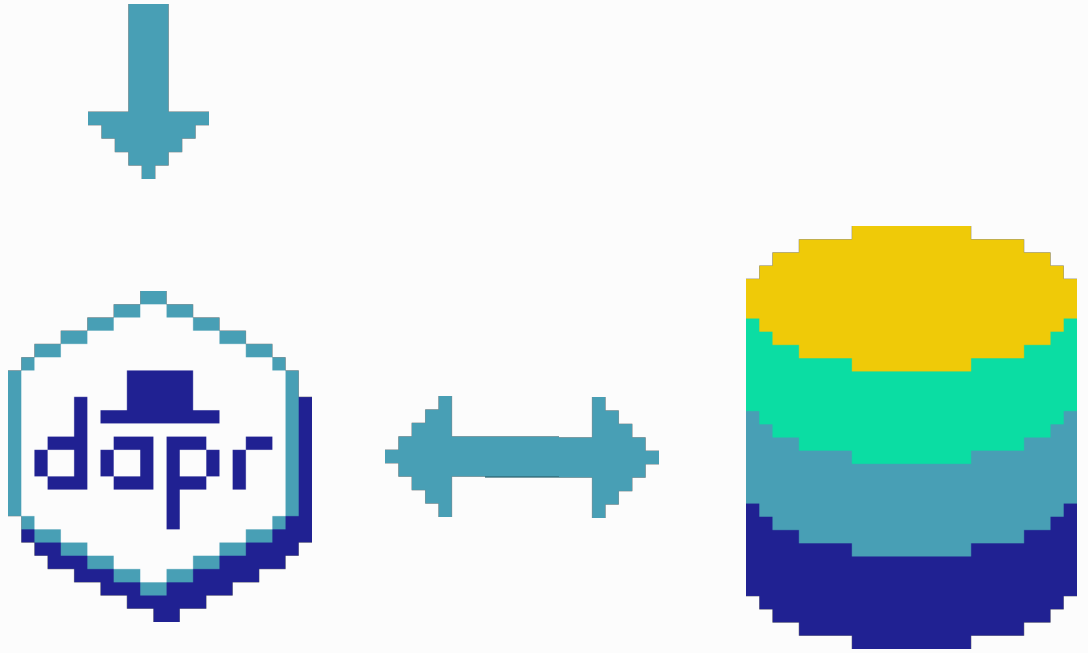


Store input
& output

@marcduiker

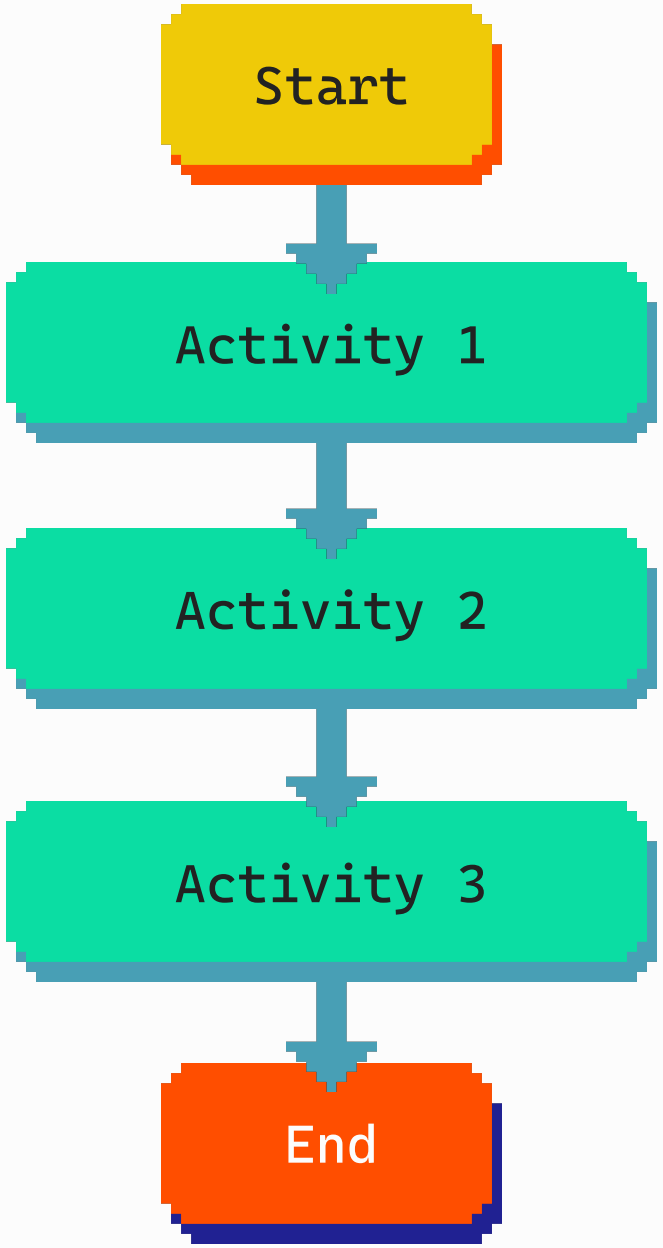


Replay Workflow

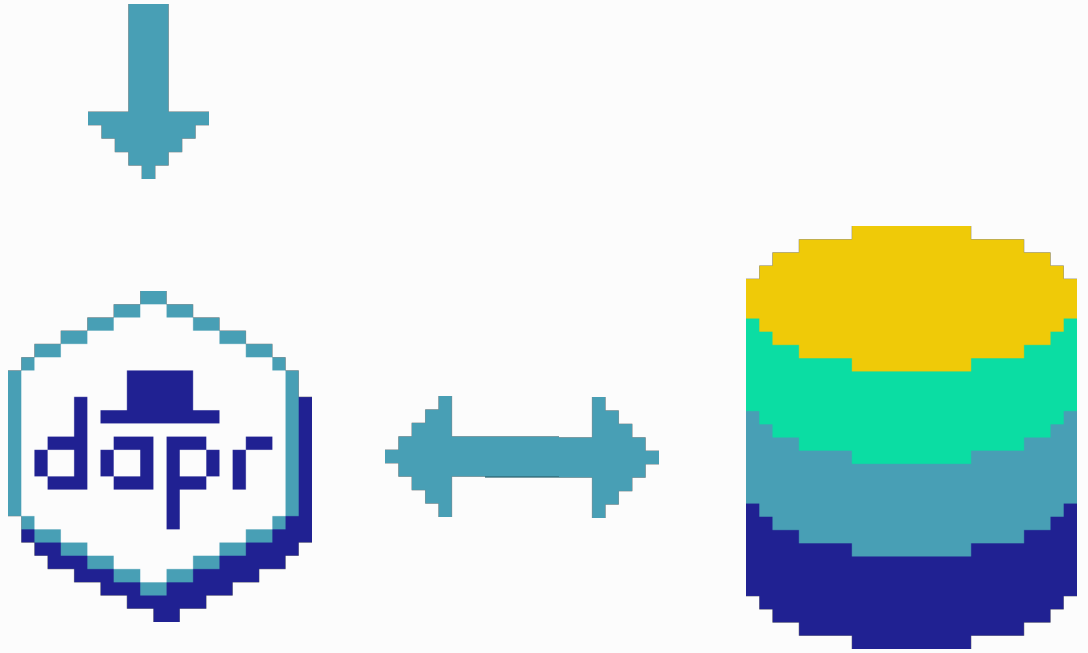


Activity 1,2 & 3 have
been executed already

@marcduiker



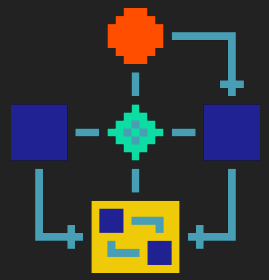
Workflow is completed



Store completion & output

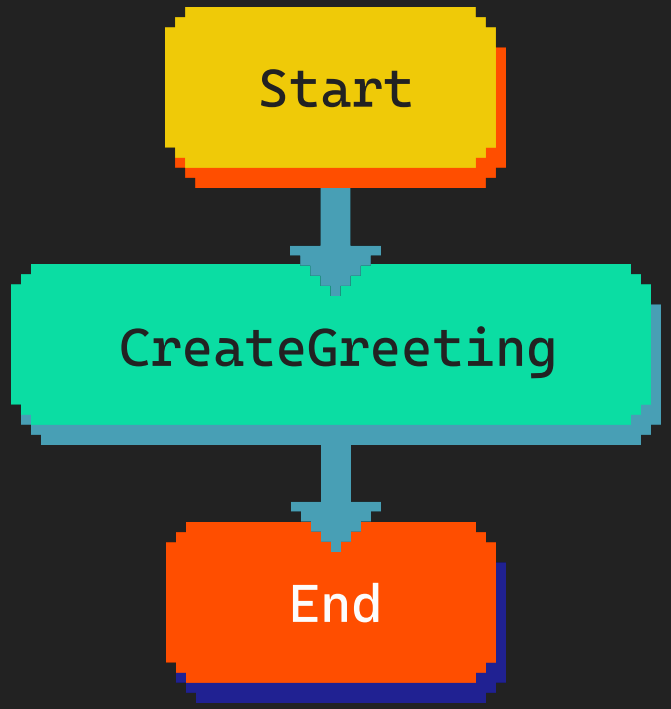
Workflow demos

github.com/diagrid-labs/dapr-workflow-demos



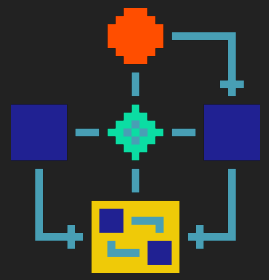
Workflows

Hello World



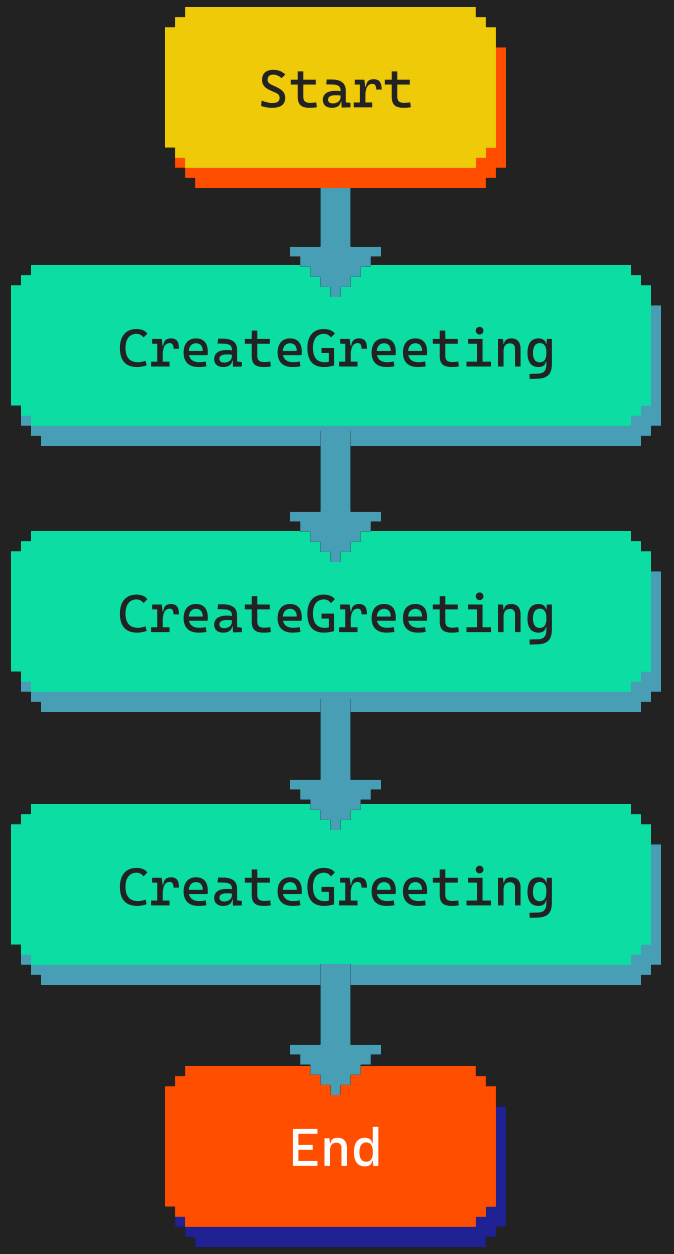
@marcduiker

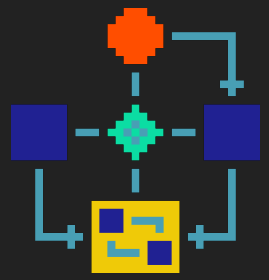
dapr



Workflows

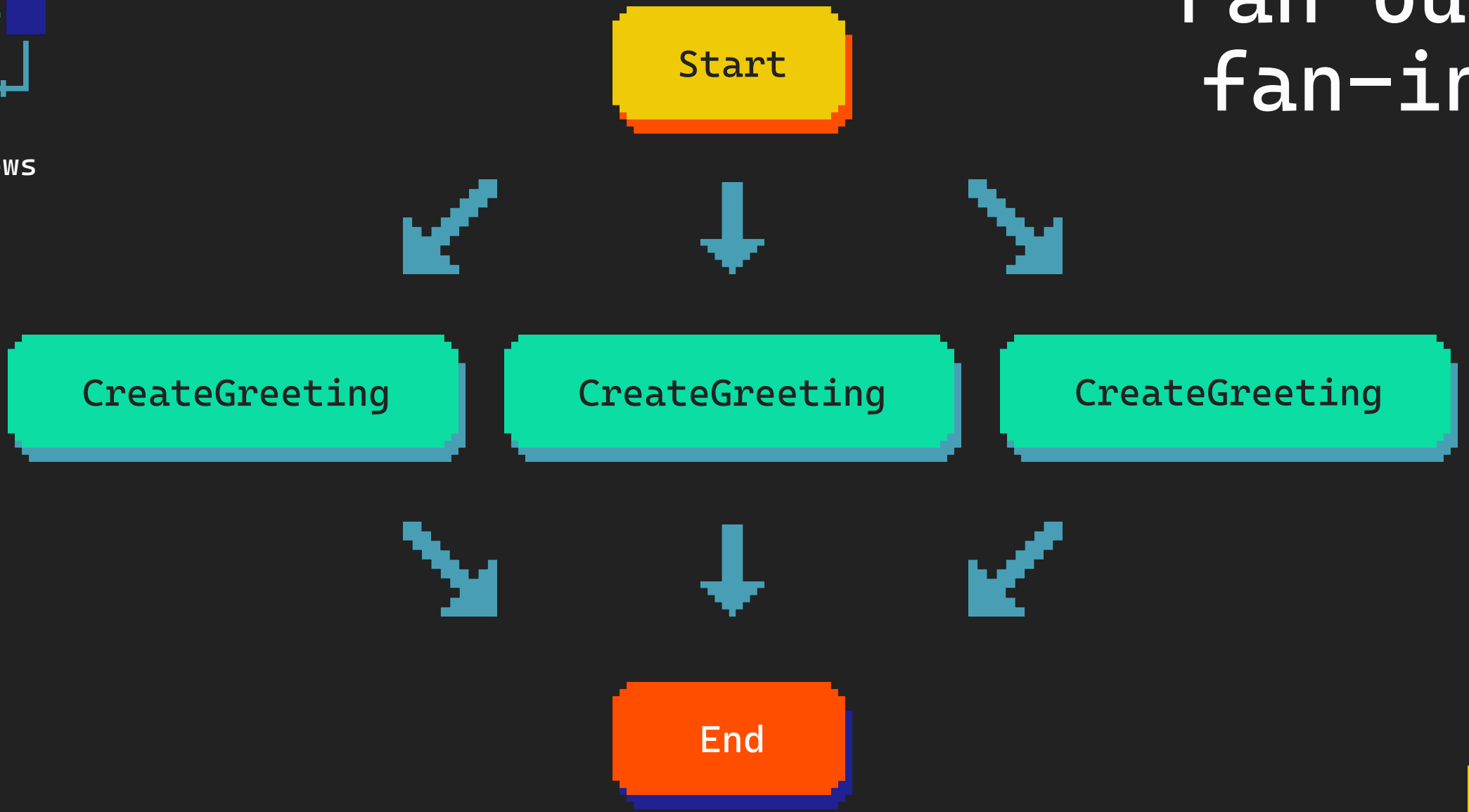
Chaining

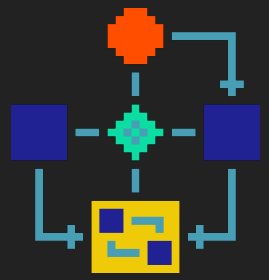




Workflows

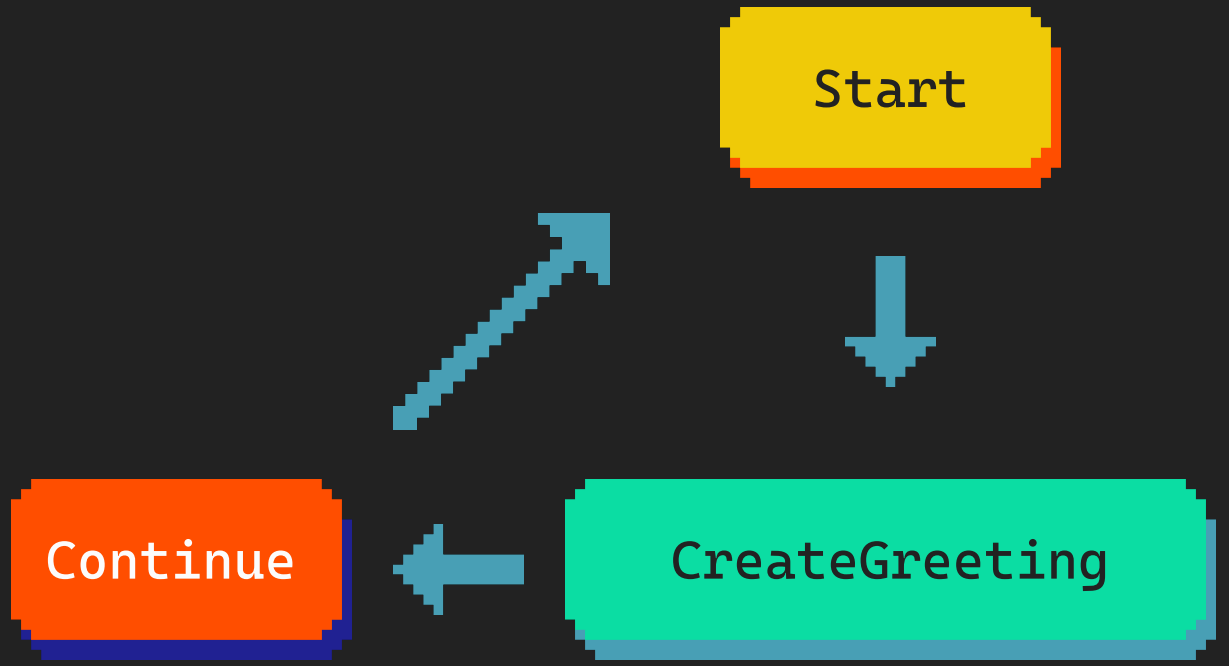
Fan-out fan-in

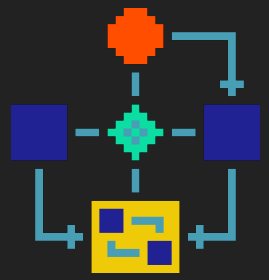




Workflows

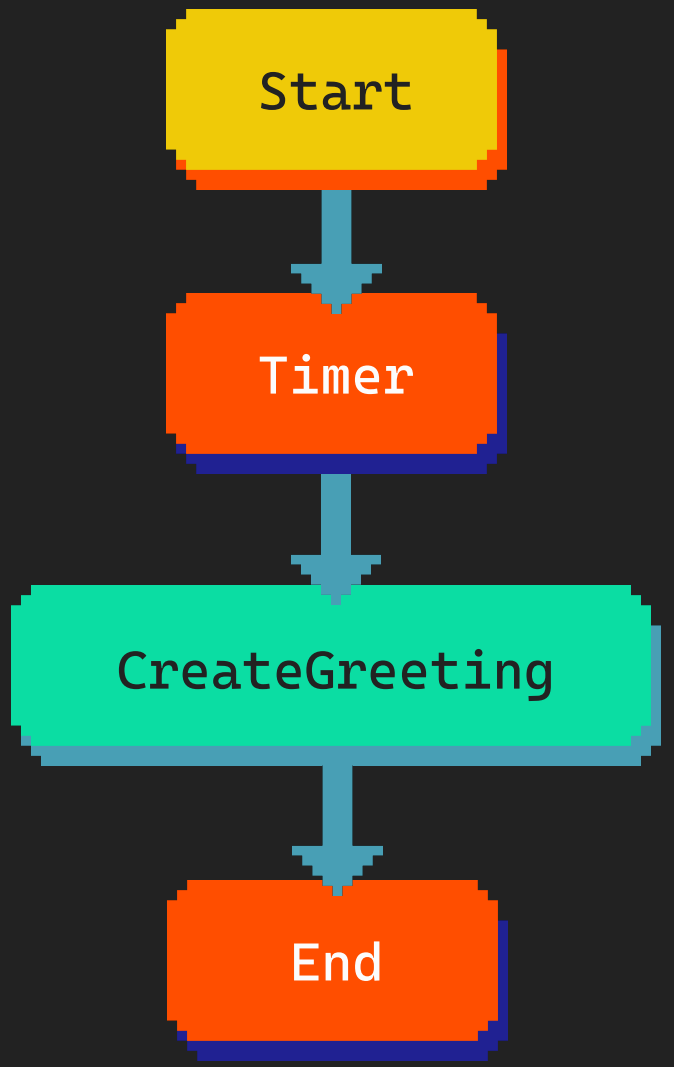
Monitor





Workflows

Timer



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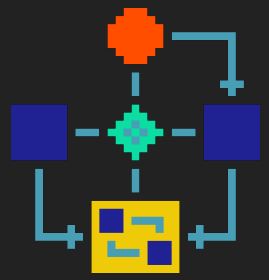
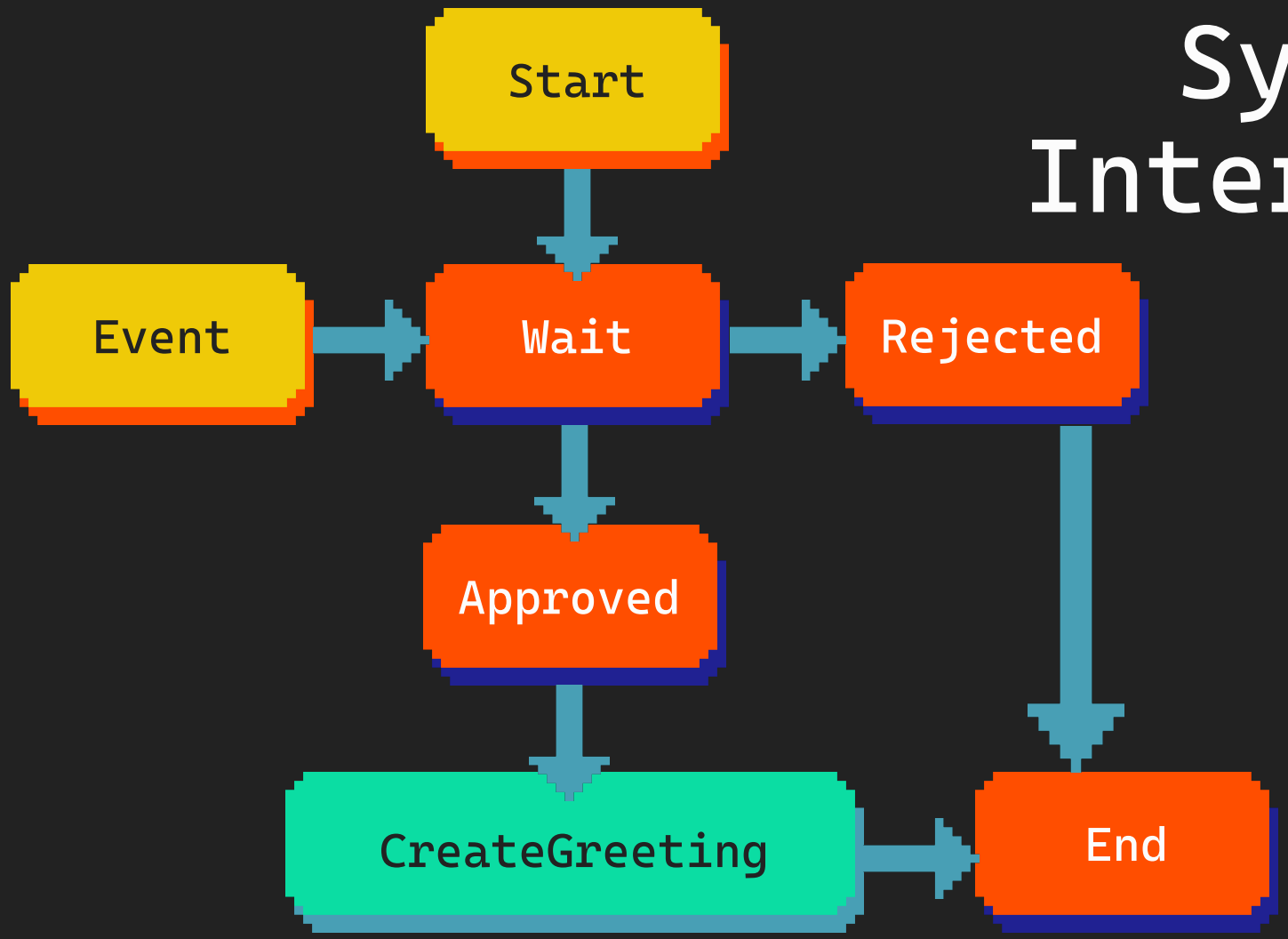
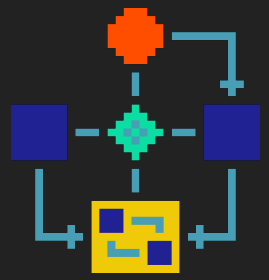
dapr



Workflows

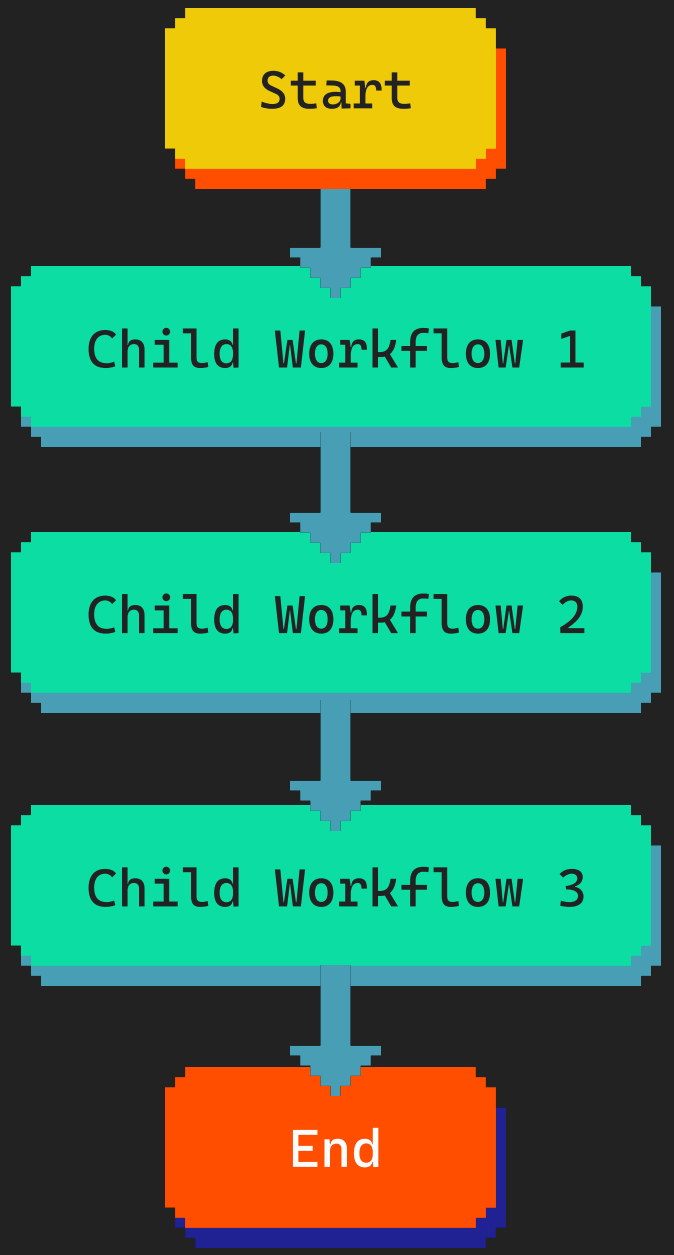
External System Interaction

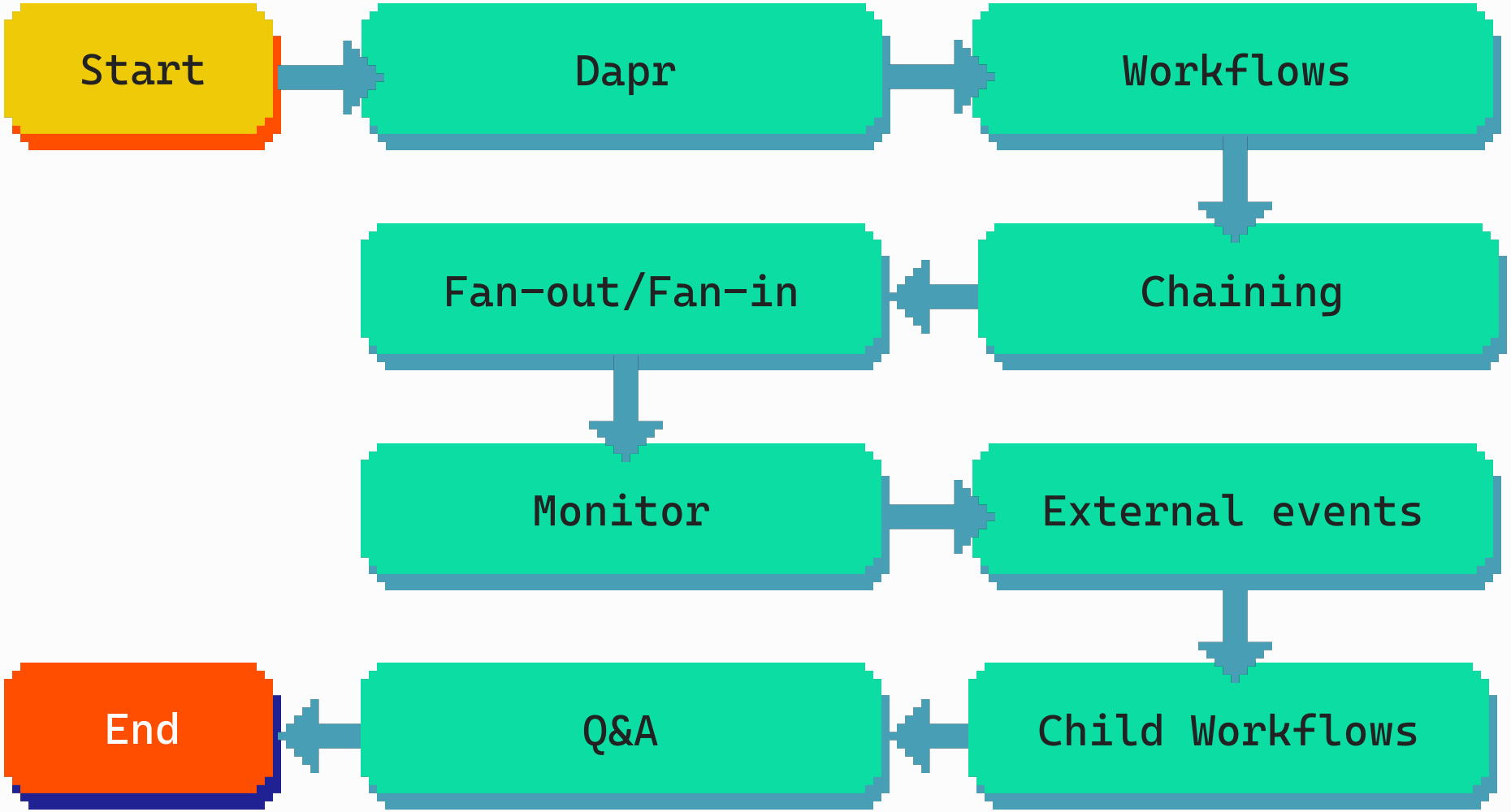




Workflows

Child Workflows




Start
Dapr
Workflows
Chaining
Fan-out/Fan-in
Monitor
External events
Child Workflows
Q&A
End

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github.com/diagrid-labs/dapr-workflow-demos

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