

NF-Core pre-Hackathon Training



05-02-25

Firas Zemzem-Nextflow ambassador

Nextflow run hello.nf --itsme

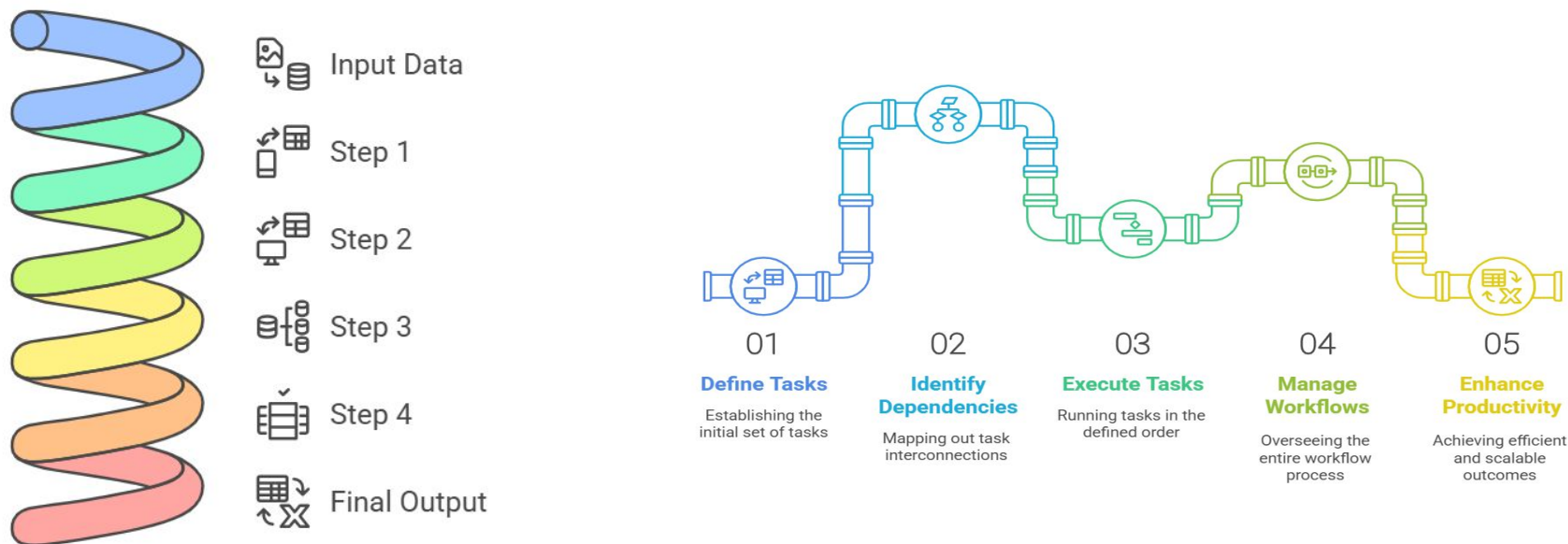


Firas Zemzem
Phd Student
Nextflow ambassador
Tunisia

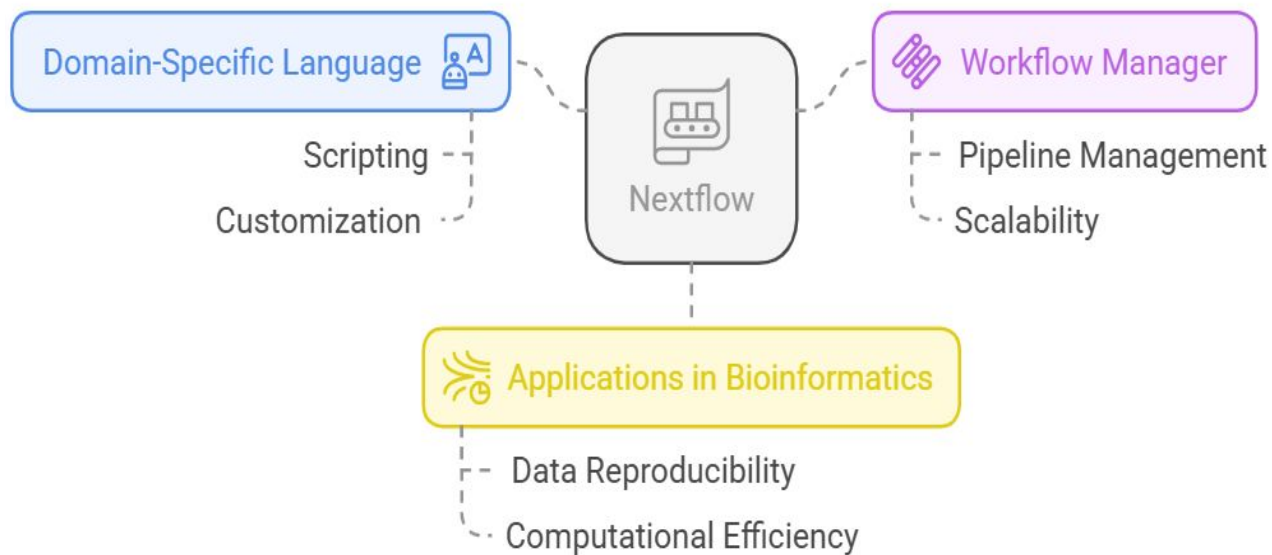


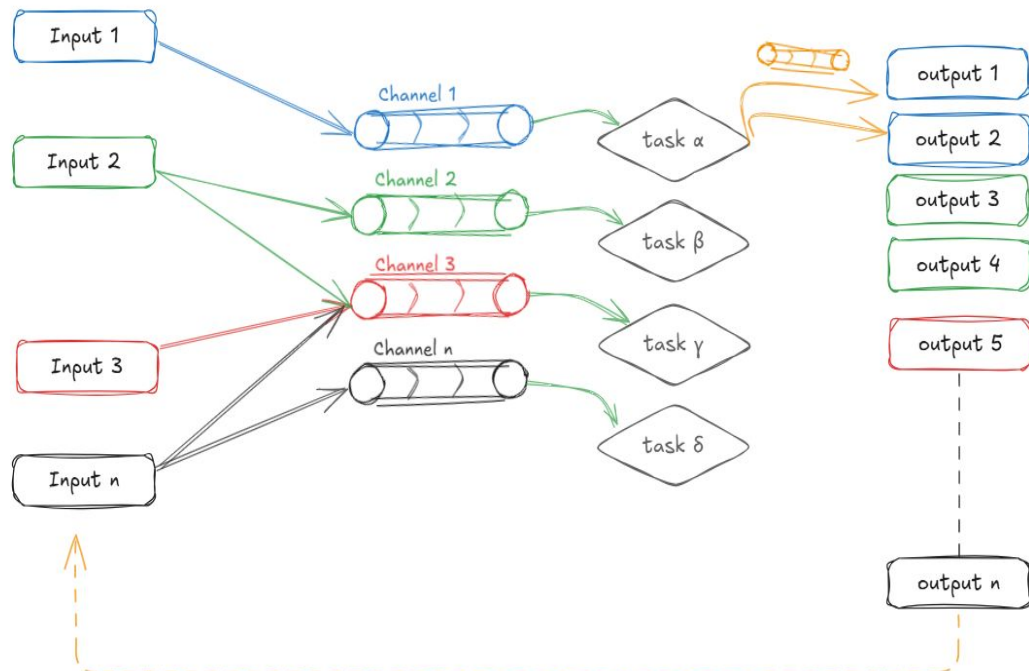
What should I know !!!

- ✓ **Nextflow** – A domain-specific language (DSL) and workflow manager designed for reproducible and scalable data-driven computational pipelines, particularly in bioinformatics.



How it really works !!!





What are Nextflow channels?

They are fundamental components of the Nextflow workflow management system for handling data streams efficiently.

How do Nextflow channels benefit users?

They enable the creation of parallel processing pipelines, facilitating complex computational tasks.

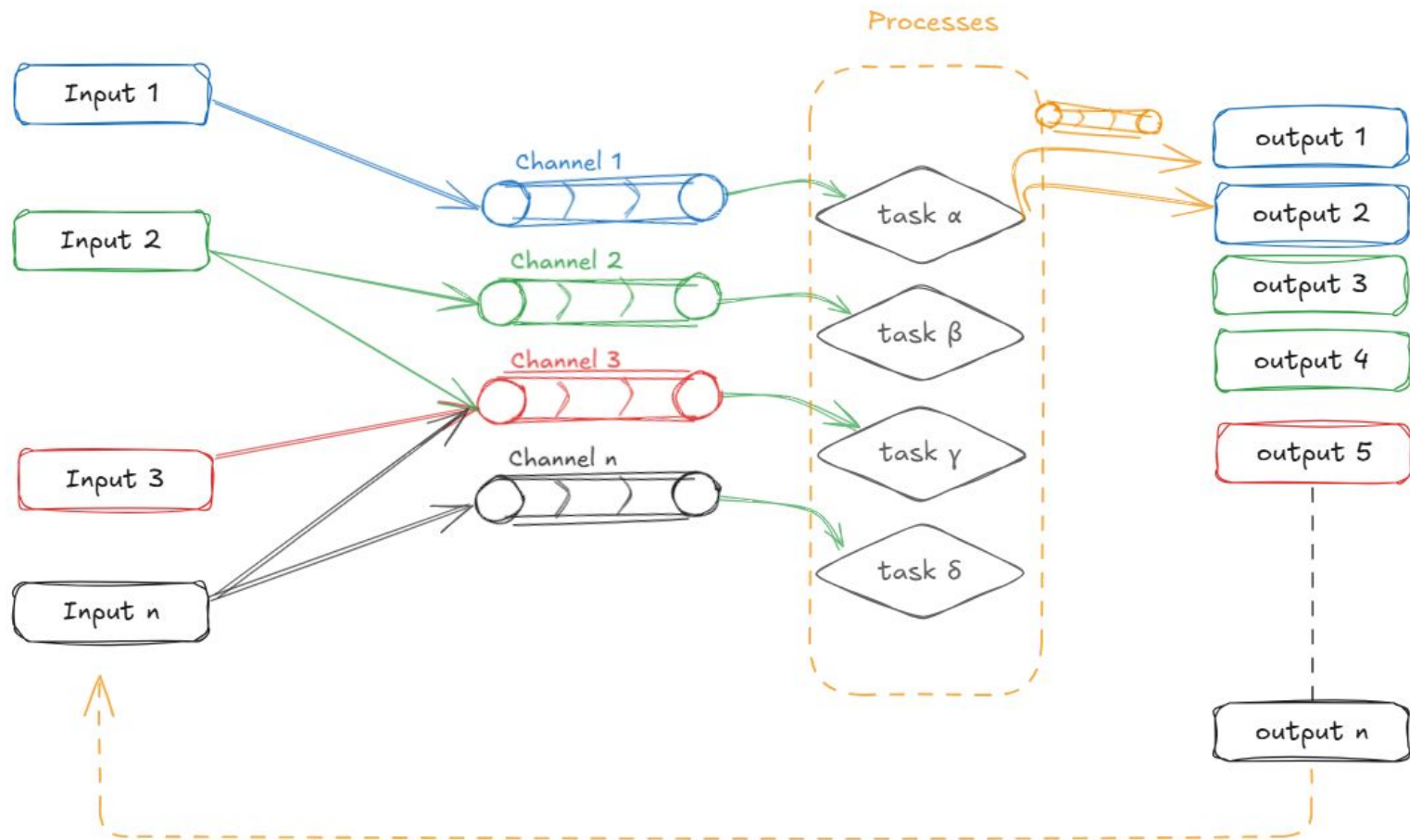
What advantages do channels provide for workflows?

They make workflows more modular and flexible, simplifying dependency and data flow management.

What is the overall impact of Nextflow channels?

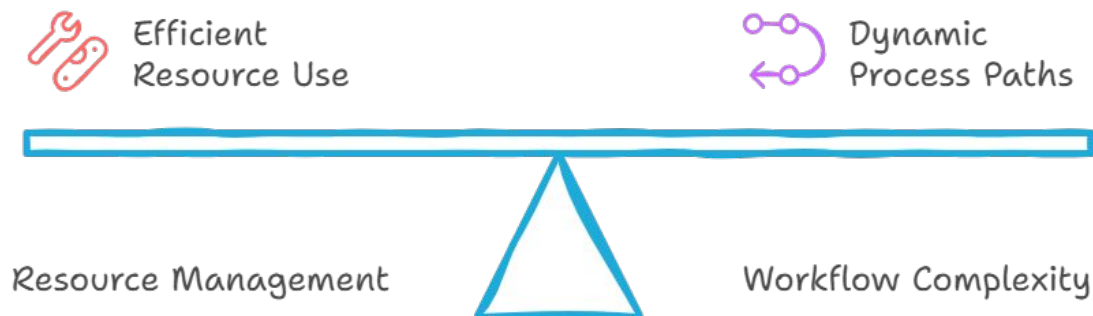
They enhance the scalability and performance of data-driven applications.





How Nextflow Can Resolve Complexity !!

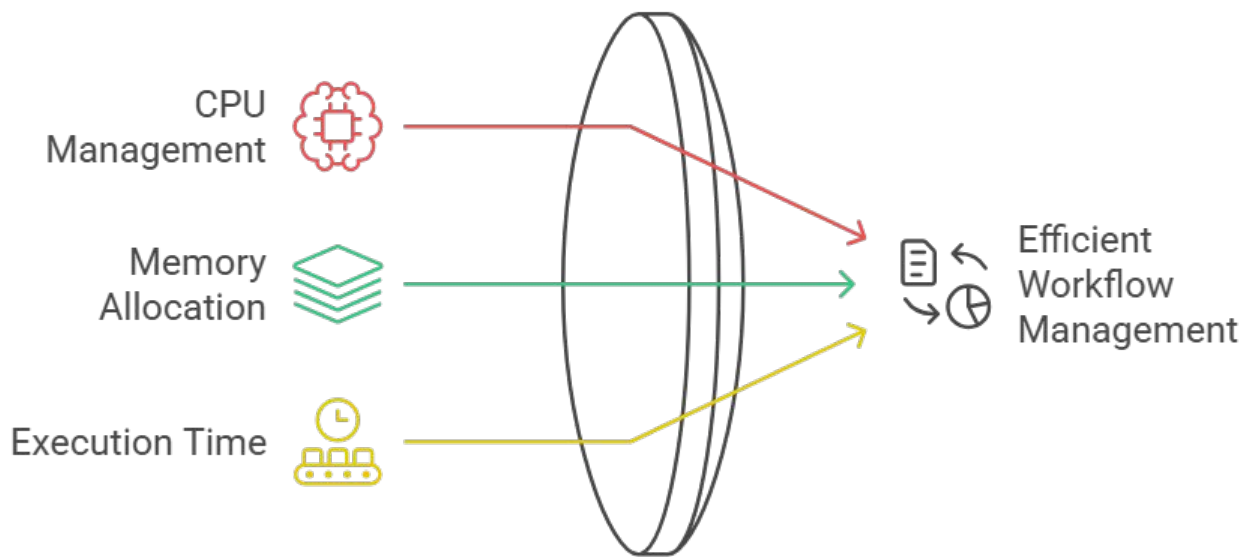
✓ Complications and Bifurcation



**Balancing Resource Efficiency and
Workflow Complexity in Nextflow**

How Nextflow Can Resolve Complexity !!

✓ Ressource Optimization



How Nextflow Can Resolve Complexity !!

✓ Channel Mixing Capabilities

Workflow Simplification

Aims at simplifying the construction of workflows

Data Manipulation

Refers to the transformation and handling of data



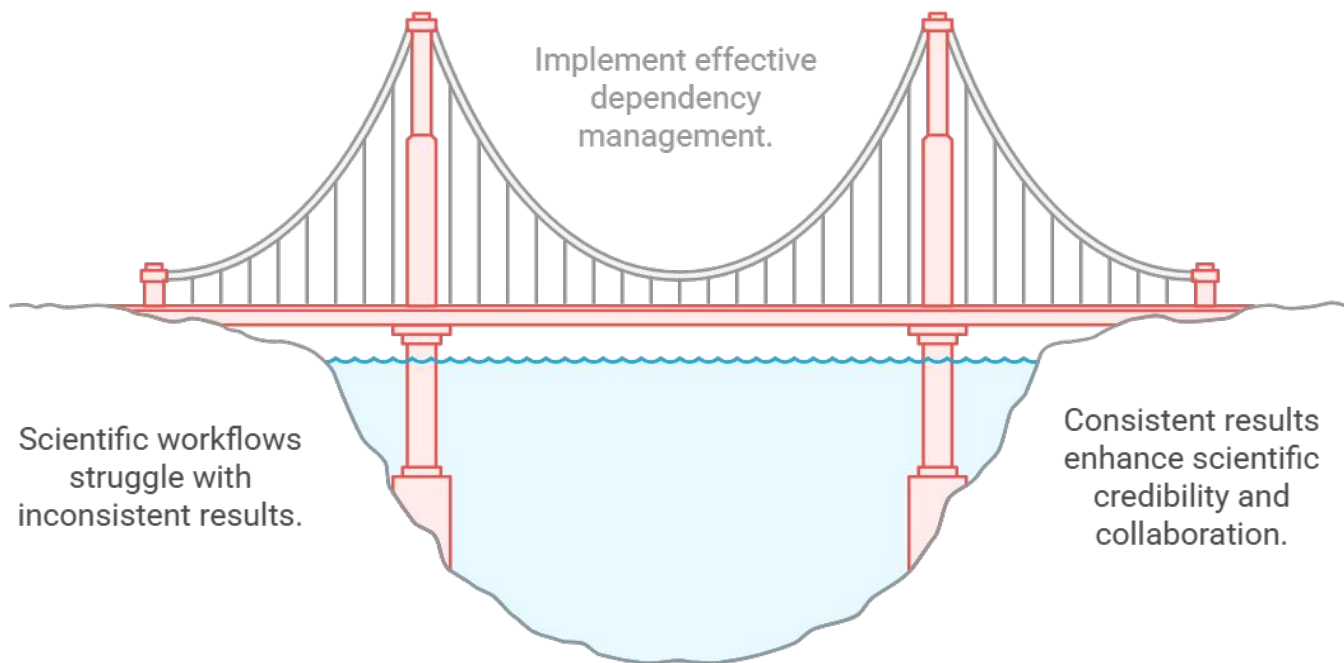
Data Streams

Represents the flow of data from various processes

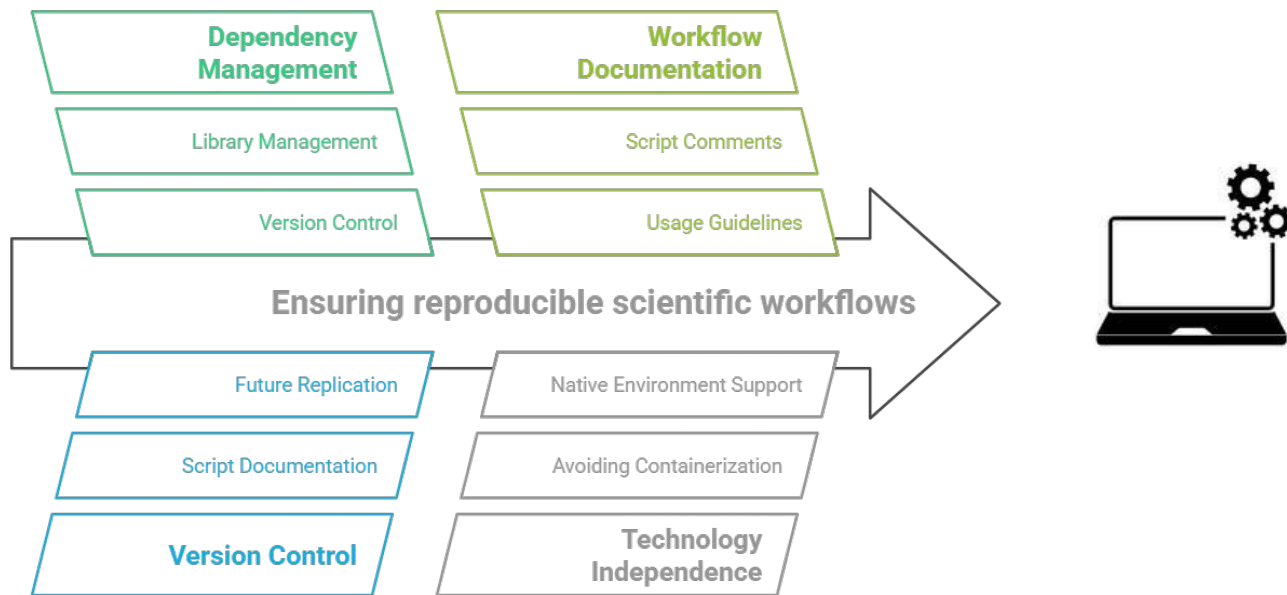
Process Integration

Involves combining outputs from different processes

How Nextflow enhances Reproducibility!!



How Nextflow enhances Reproducibility!!



How Nextflow enhances Portability!!



Local Machines

Workflows can run on personal computers.



Cloud Services

Workflows can be executed on cloud platforms.

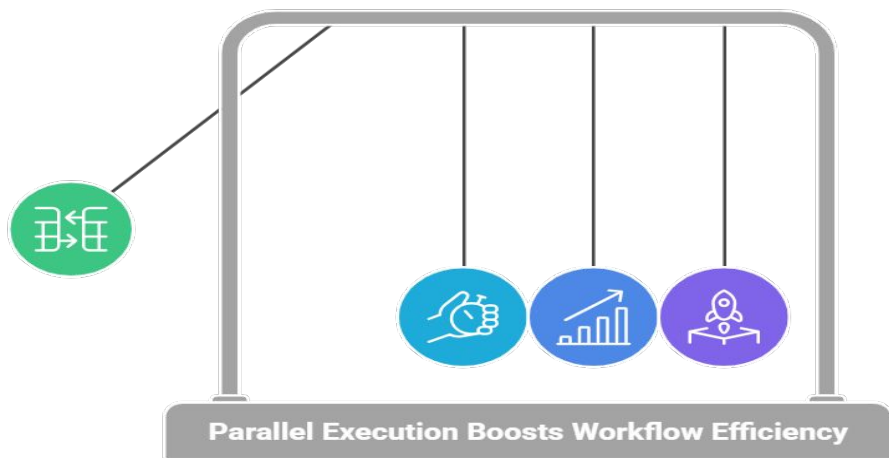


HPC Clusters

Workflows can utilize high-performance computing resources.



Portability – Scalability !!



Parallel Execution

Speeds up processes

Increased Speed

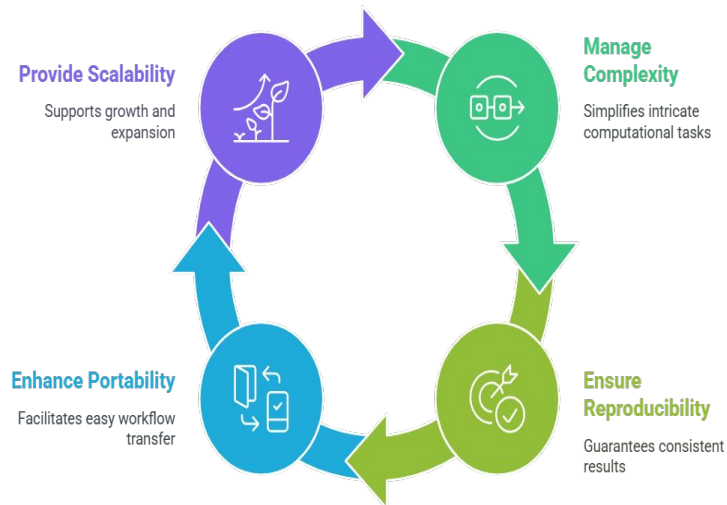
Faster workflow execution

Resource Utilization

Maximizes computational resources

Enhanced Performance

Improves data-intensive tasks



Demo Time

WHEN THE SCRIPT IS RUNNING
SUCCESSFULLY AND I SEE MY
REFLECTION IN THE  SCREEN



