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THREAT MODELLING OVERVIEW

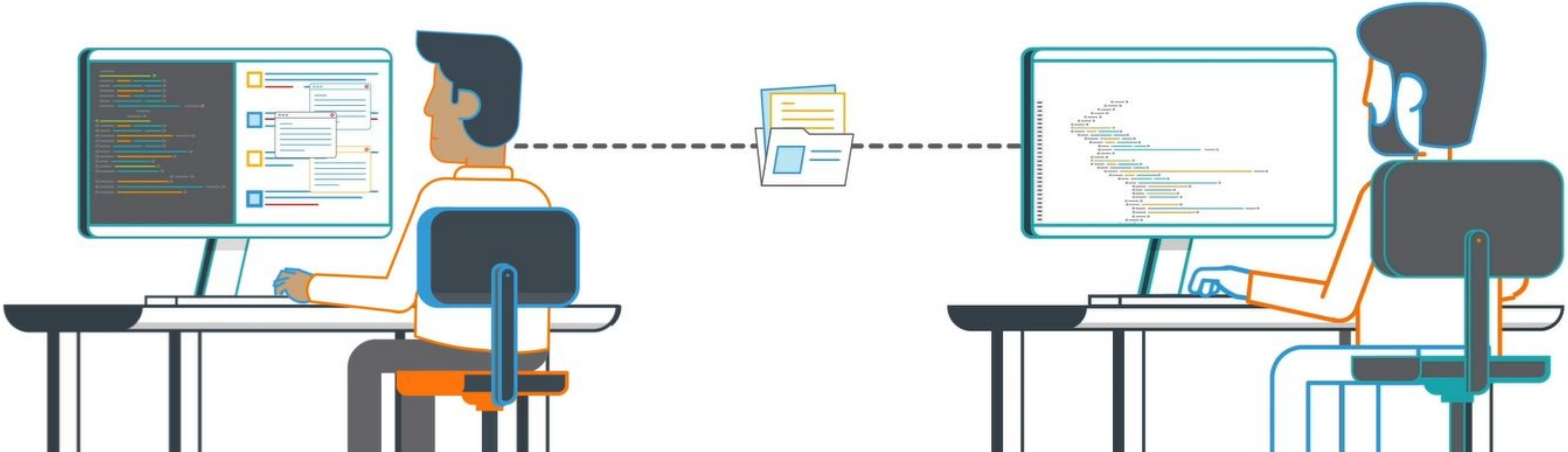
In this module

we'll be going through an overview of Threat Modeling.

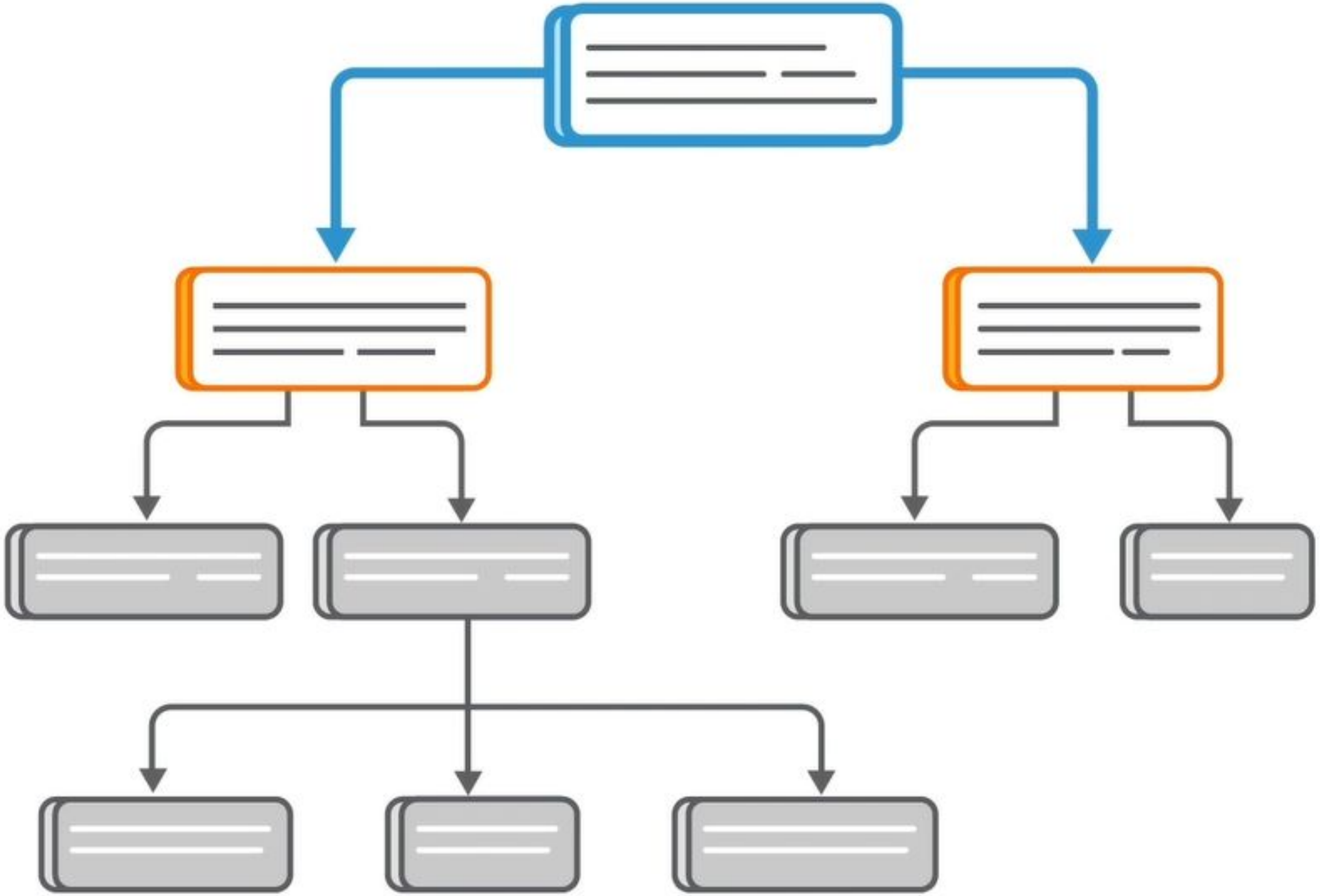
Threat Modeling is a way to identify, communicate, and understand security threats and mitigations.

IDENTIFY COMMUNICATE SECURITY THREATS MITIGATIONS

It helps teams evaluate and prioritize threats - and then allocate security resources accordingly.



A threat modeling process should be systematic and structured.



There are many Threat Modeling methodologies out there, such as STRIDE or Attack Trees,

STRIDE

S SPOOFING

T TAMPERING

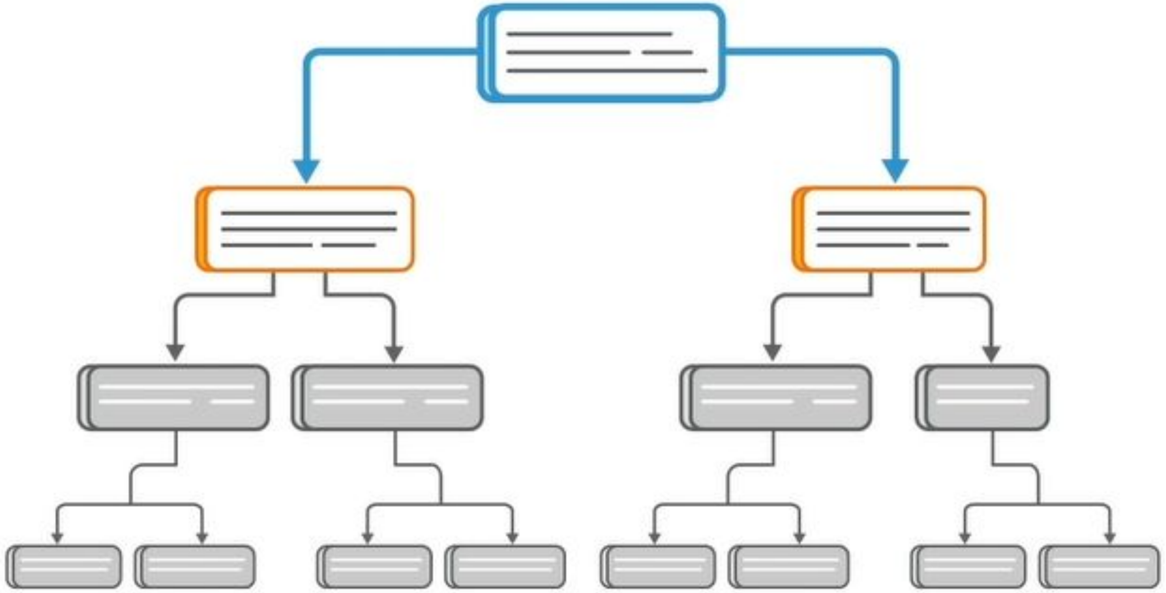
R REPUDIATION

I INFORMATION DISCLOSURE

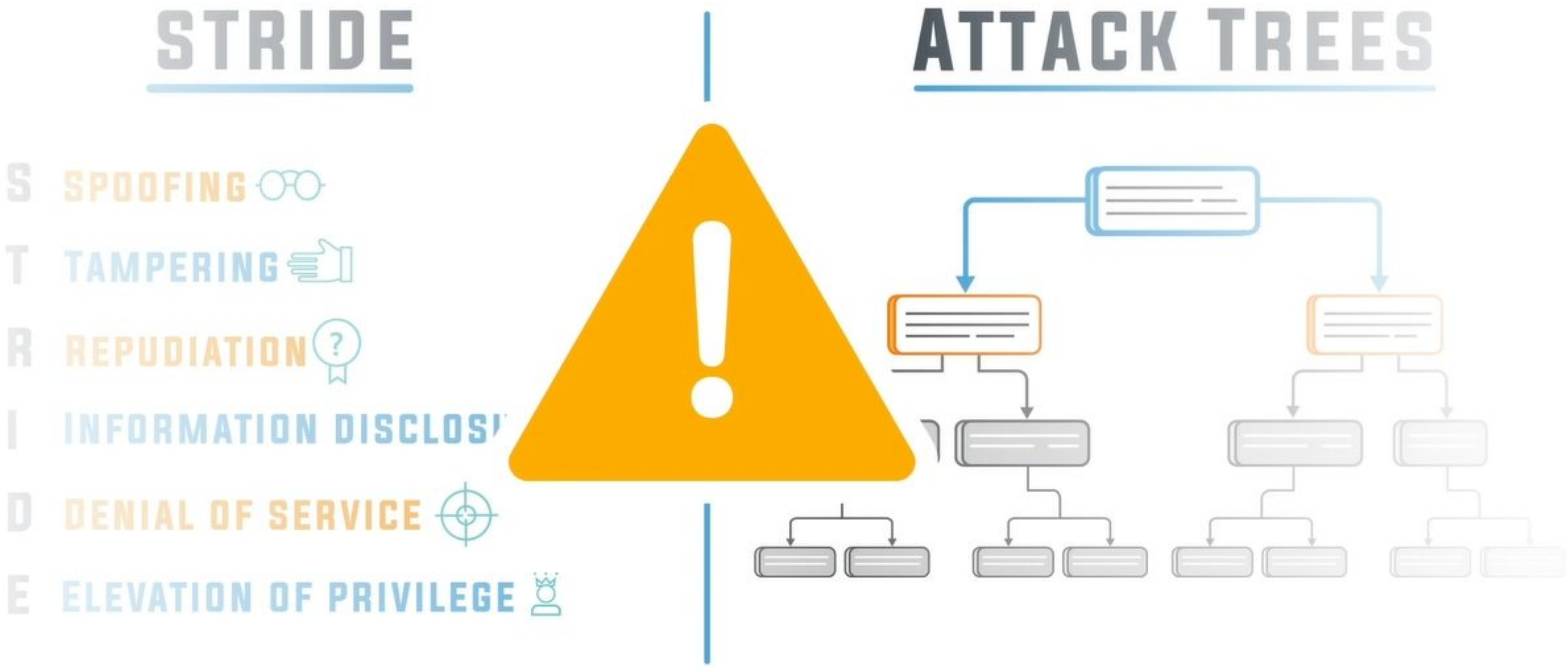
D DENIAL OF SERVICE

E ELEVATION OF PRIVILEGE

ATTACK TREES



but there is no single “correct” way to model

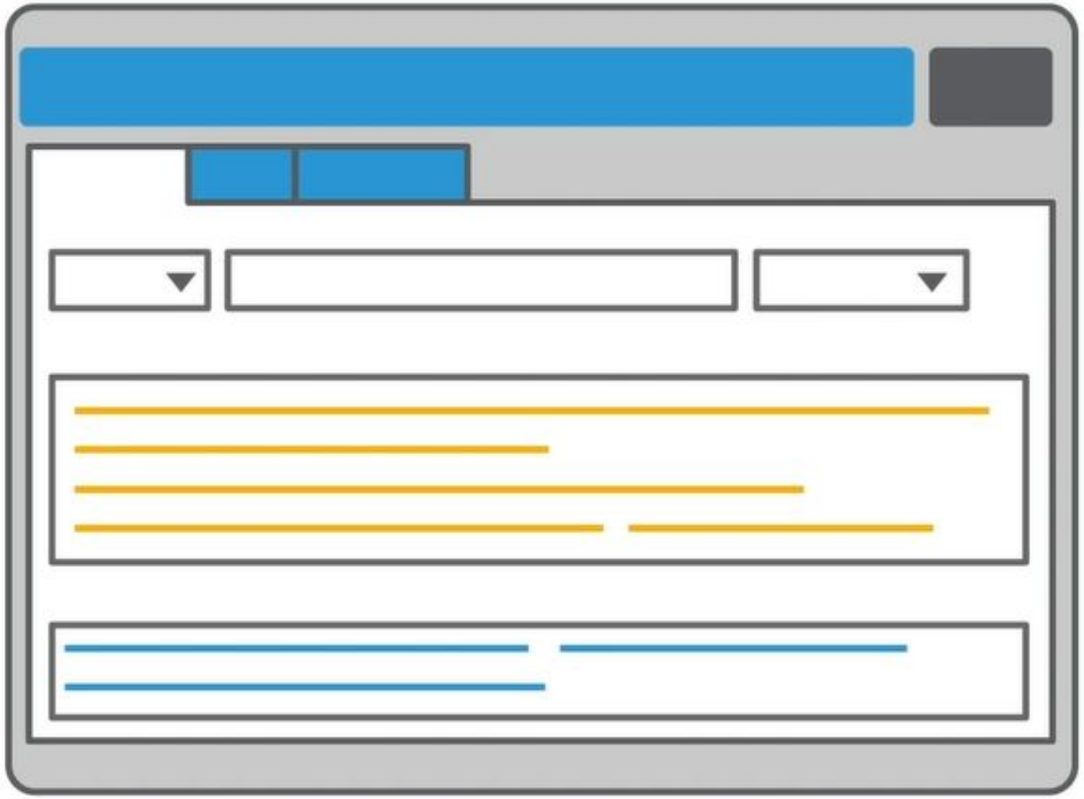


THERE ARE, HOWEVER, SOME COMMON ELEMENTS AMONG THREAT MODELING METHODOLOGIES.

A threat model should cover four main elements

1. ASSETS
2. VULNERABILITIES
3. THREATS
4. THREAT AGENTS

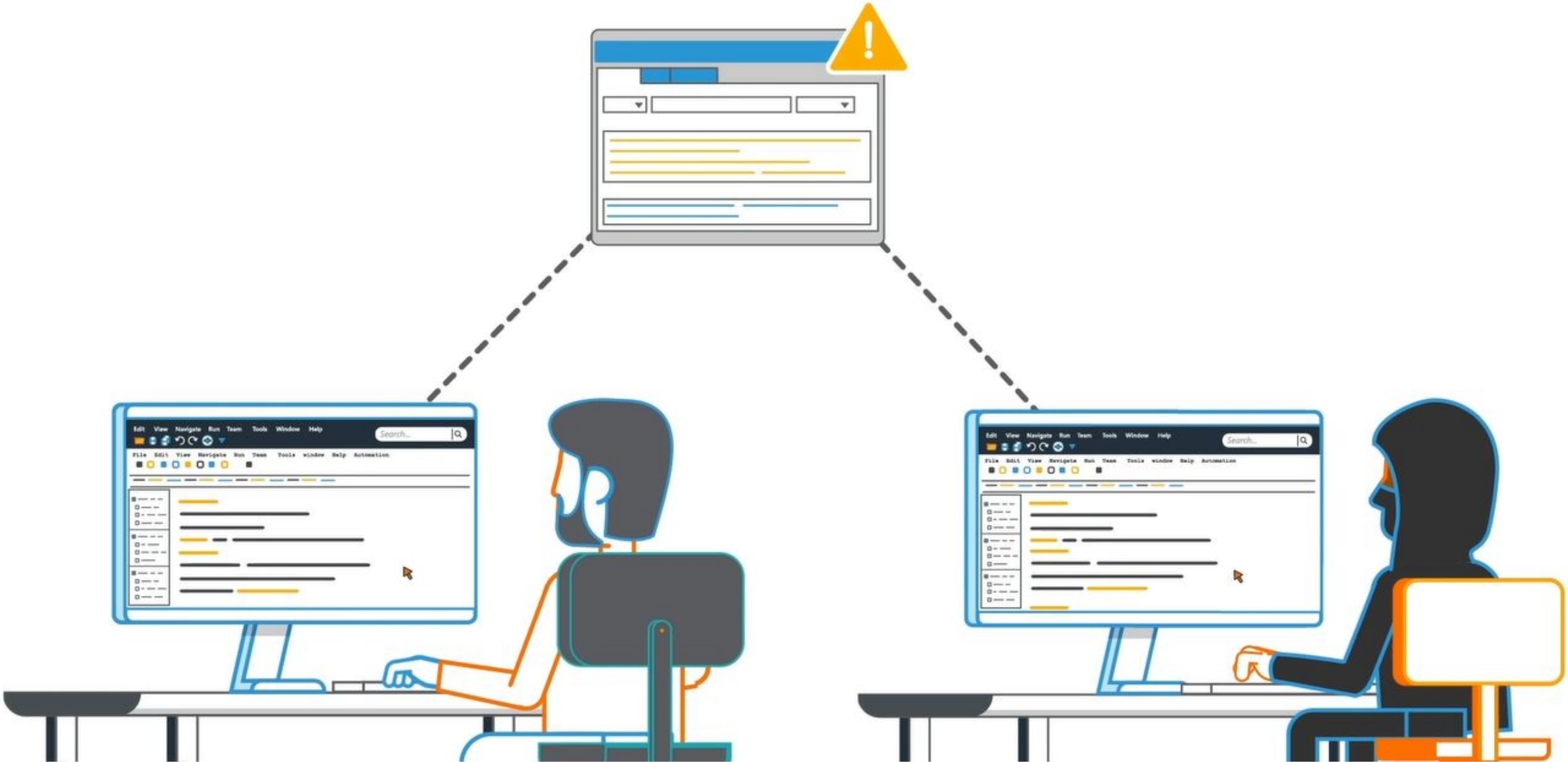
Assets - what needs to be protected (e.g. an app)



Vulnerabilities - weaknesses that, when exploited, could cause damage

Threats - potential damage that could occur as a result of exploiting a vulnerability

Threat Agents - one who exploits a weakness to cause a threat. Keep in mind, this could be an insider or an outsider.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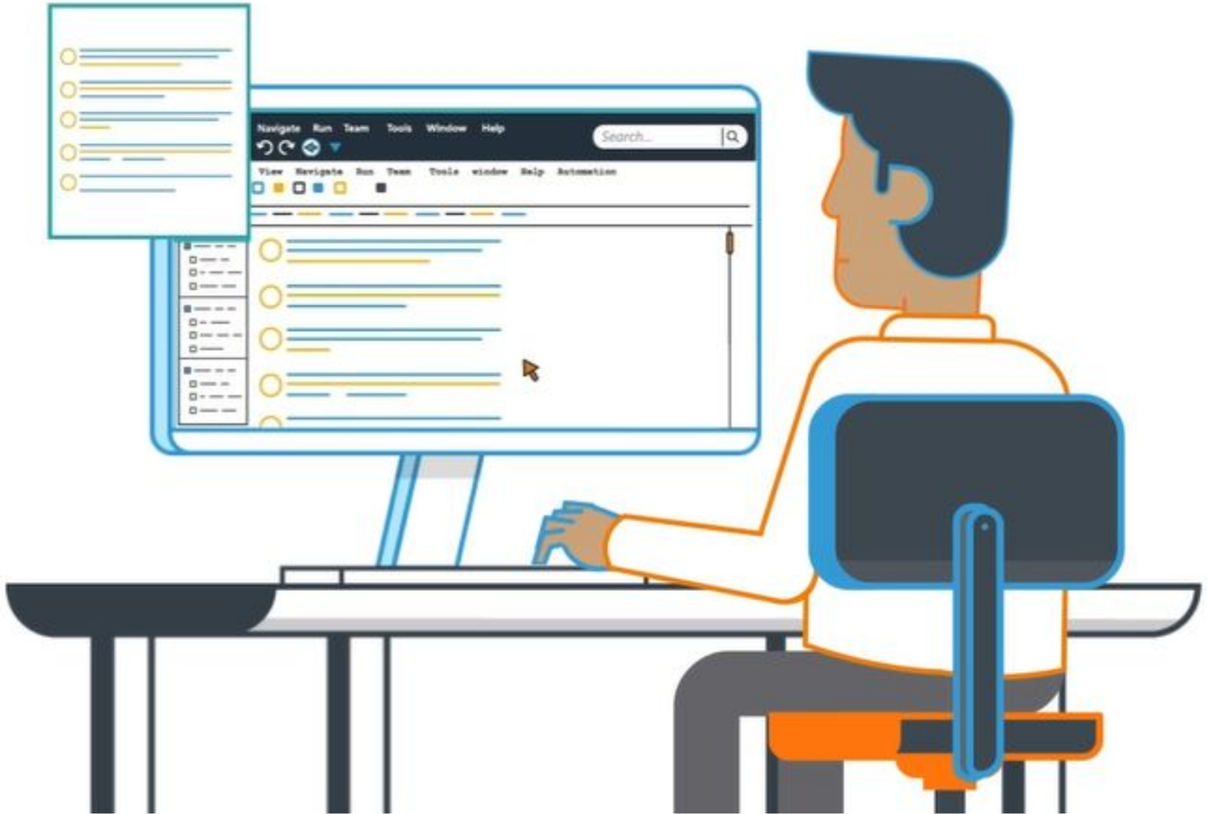
A BASIC THREAT MODELING PROCESS SHOULD INCLUDE

Assessment: a description or model of the asset being worked on and a list of assumptions about it

ASSESSMENT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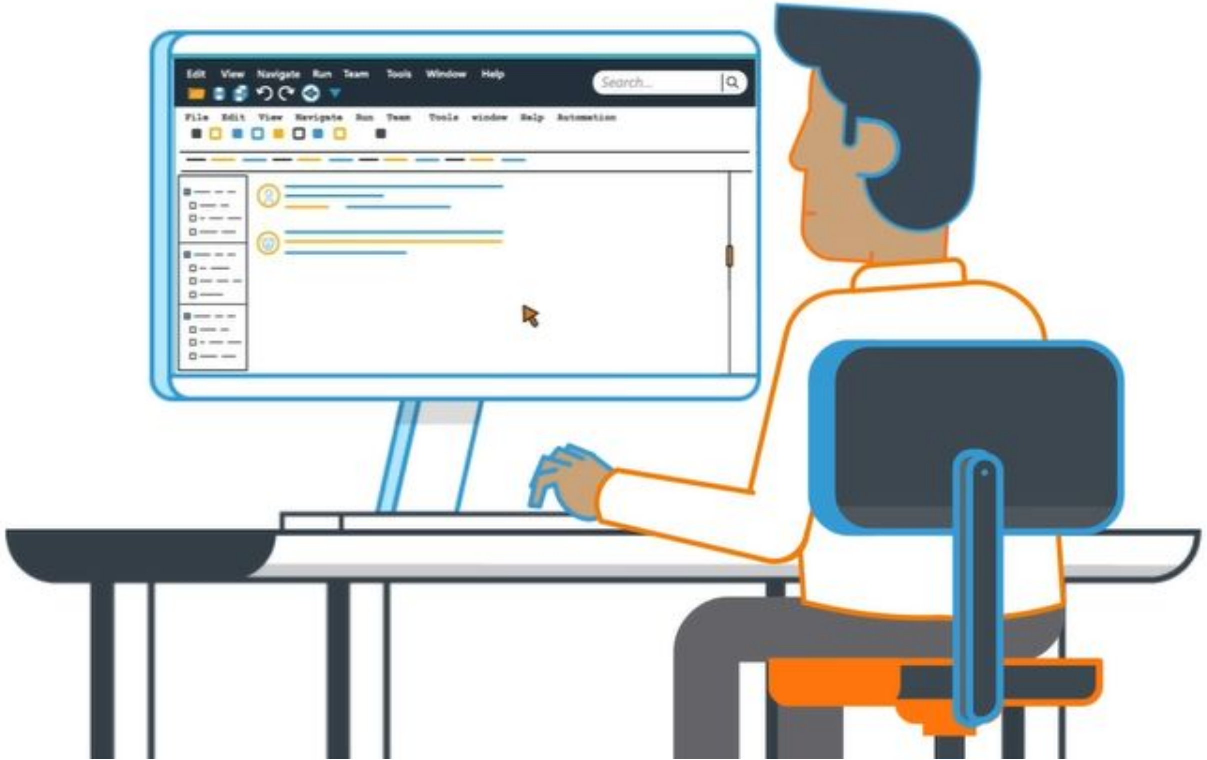
Threat Agent Identification: a list of agents who might be able to attack an application

THREAT AGENT IDENTIFICATION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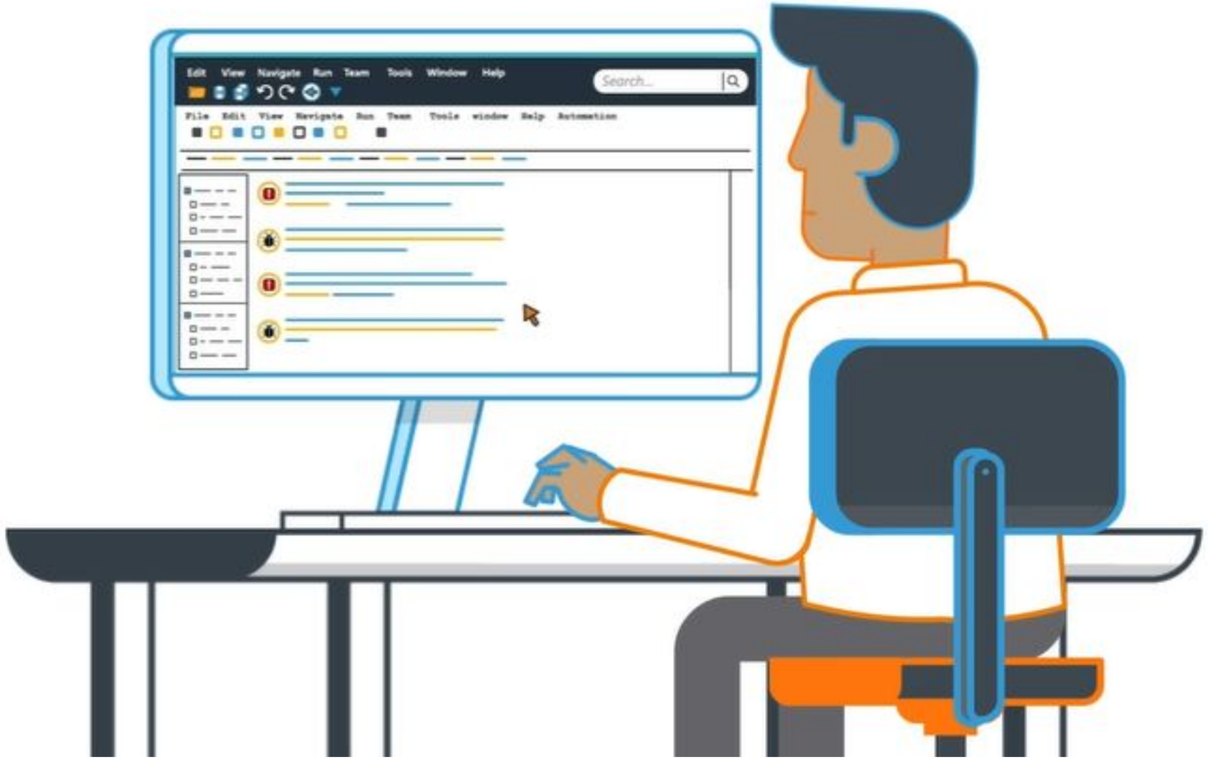
Threat Identification: a list of things that could go wrong

THREAT IDENTIFICATION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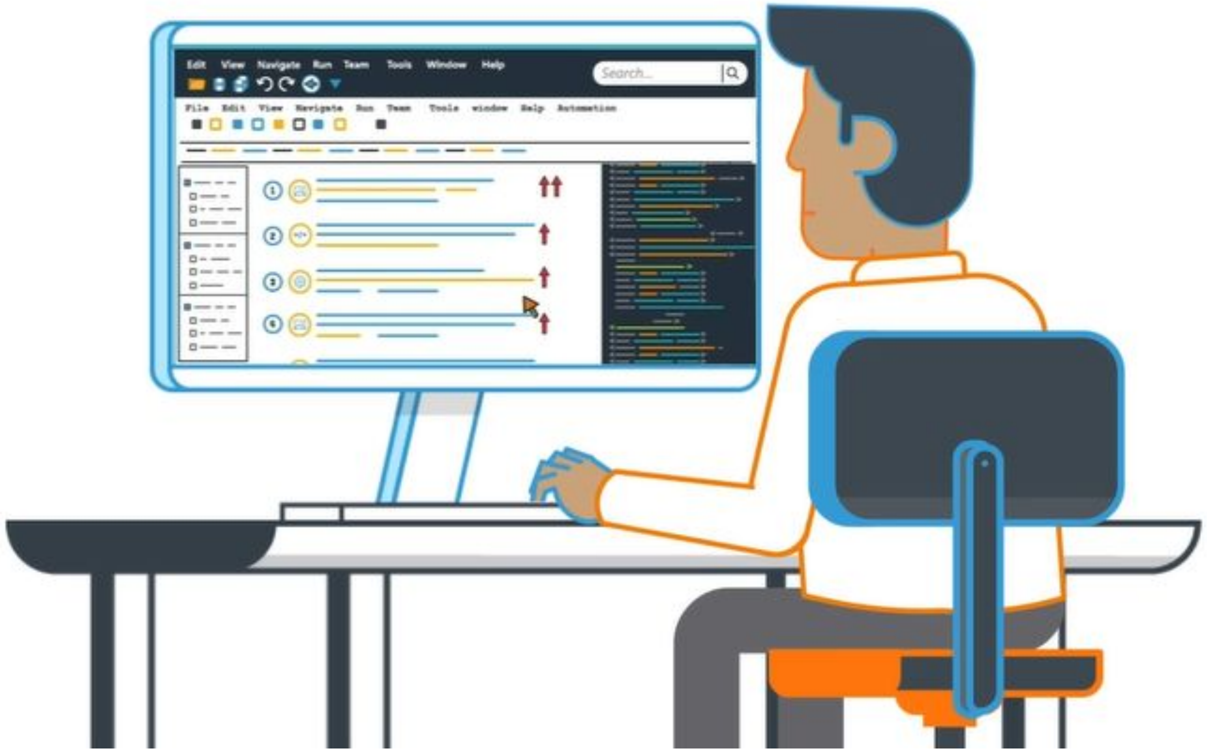
Threat Prioritization: quantifying likelihood, impact factors etc.
- to determine the overall risk of each threat previously identified

THREAT PRIORITIZATION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Remediation of threats: determining what countermeasures can be applied to reduce the risk level

REMEDIATION OF THREAT

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To start using Threat Modeling developers should keep in mind the following

- Threat modeling is most effective when done early on, so potential threats can inform app design
- Ensure business goals and requirements play a part in your model to ensure adequate protection
- Threat assessments should be revisited regularly as your project and landscape evolve

The Threat Modeling process should provide answers to the following questions

- What are we building?
- What could go wrong?
- Where am I most vulnerable to attack?
- Which threats are most relevant?

The Threat Modeling process should provide answers to the following questions

- What are we going to do about those threats?
- How can we safeguard against these threats?
- Did we do a good enough job?

Congratulations, you have now completed this module!

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