Onshape

Introdução a modelagem 3D com onshape

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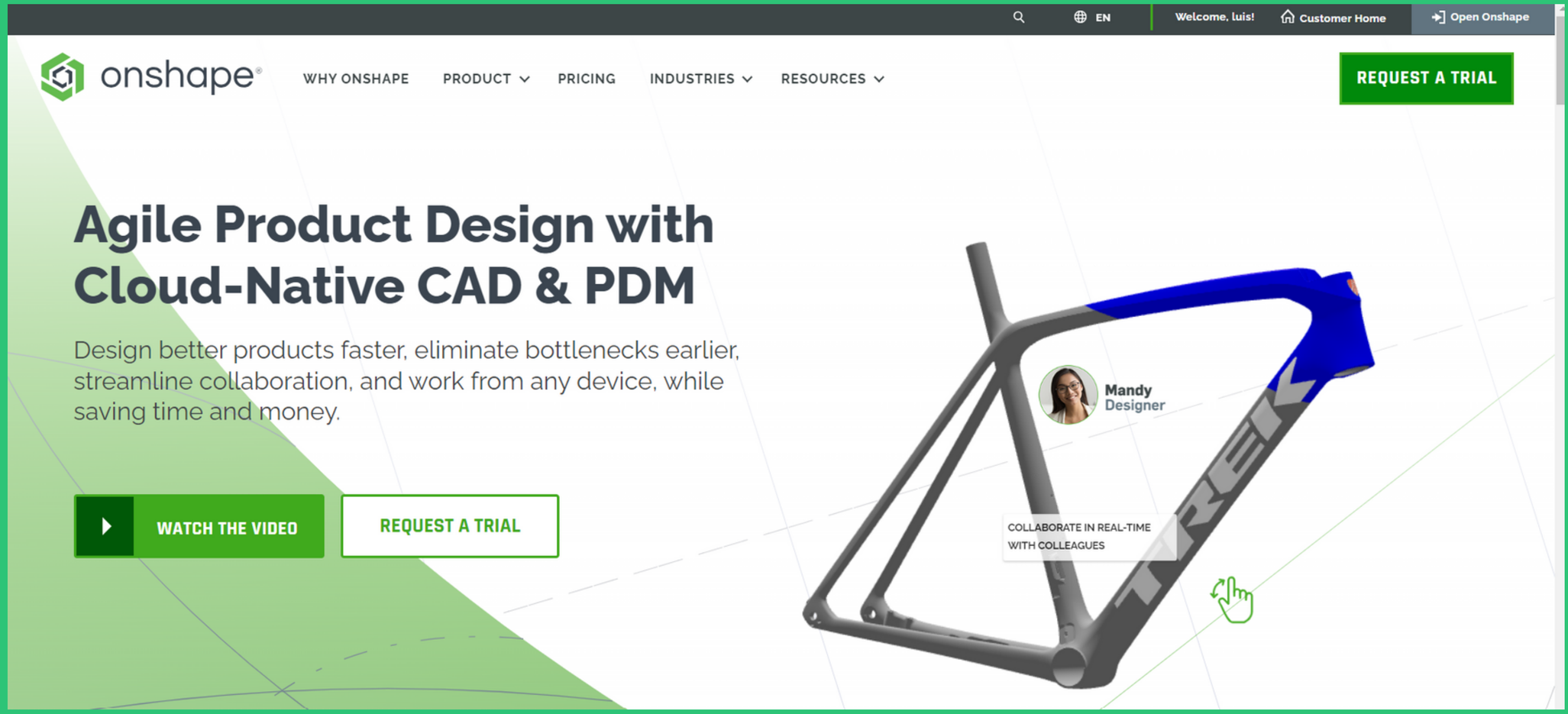
UERJBOTZ

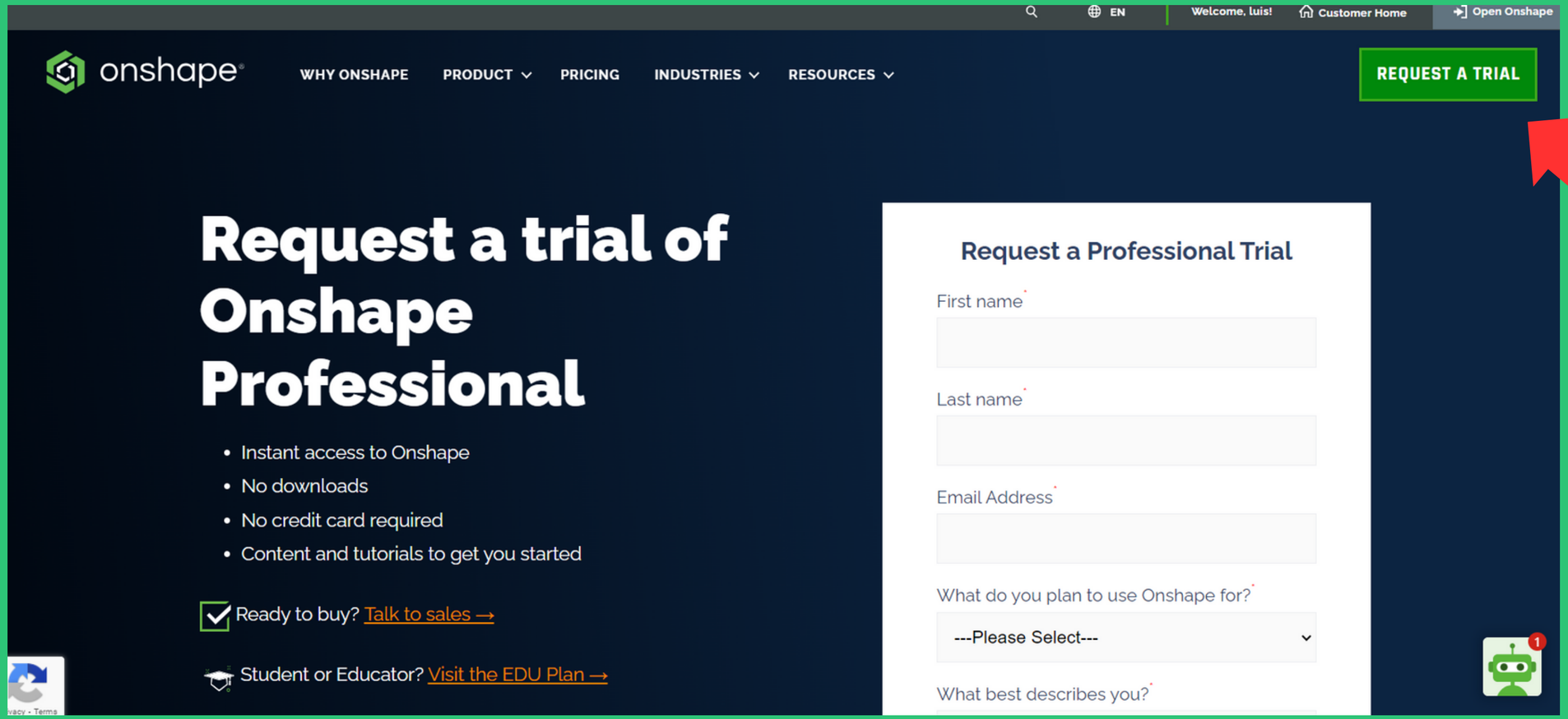
Olá, sou Luis Felipe!

Estudante de engenhria elétrica com enfase em sistemas eletrônicos. Na UEREJBotz sou Diretor da área de eletrônica e vice capitão.

Onshape é um CAD software online de modelagem 3D

onshape®





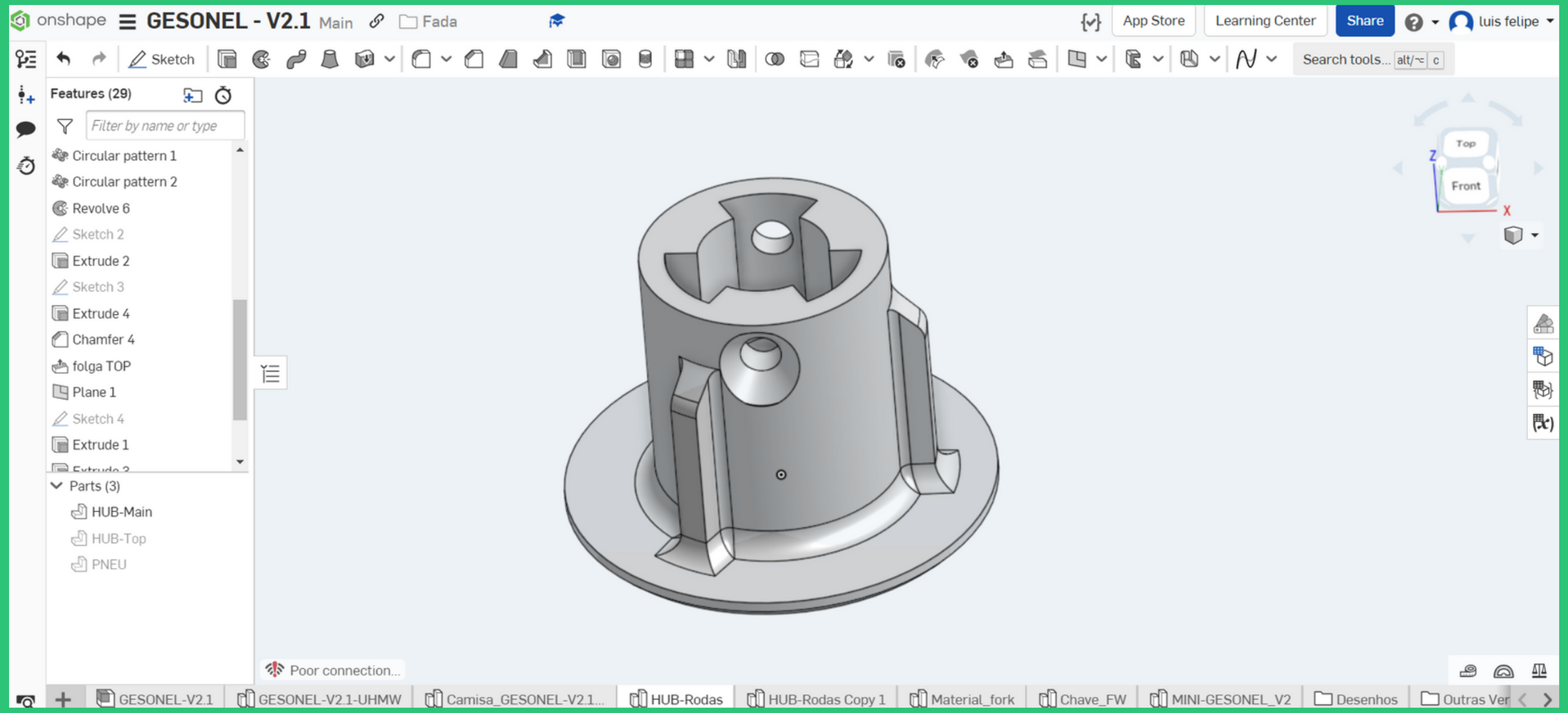
Conta gratuita para estudante

QUESTÃO

o'que podemos fazer usando um CAD de modelagem 3D?

PRÓXIMO

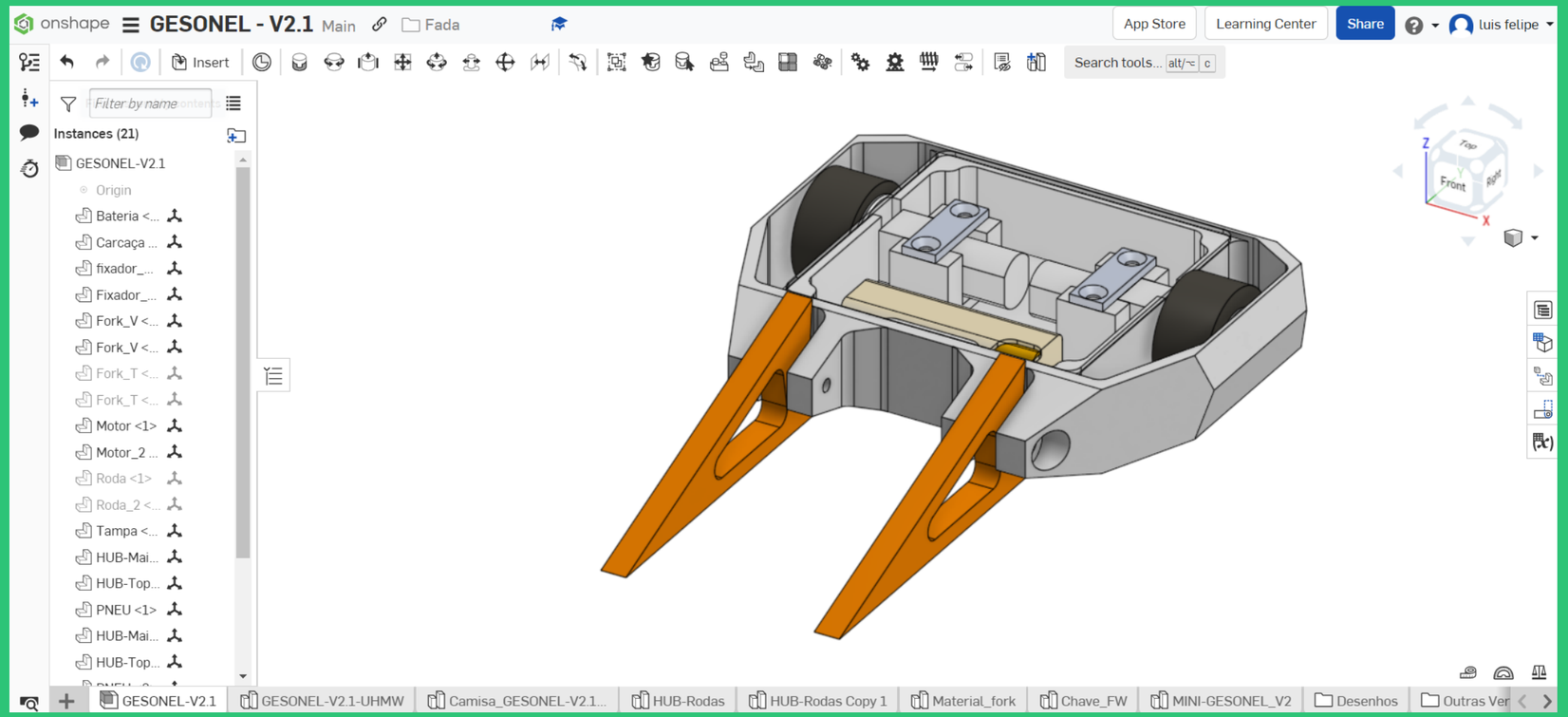
Muitas coisas...



1

Criar objetos 3D

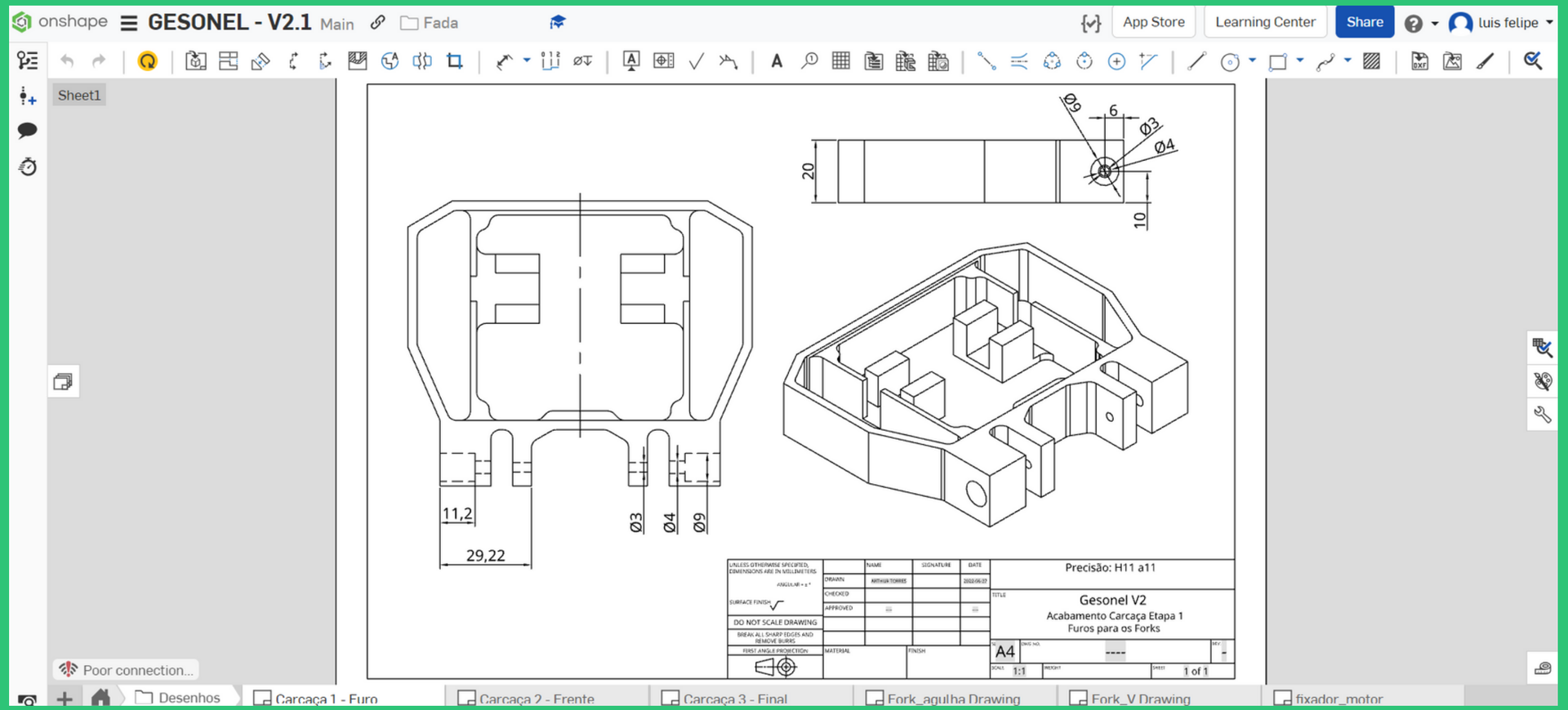
Muitas coisas...



2

Fazer montagens de maquinas

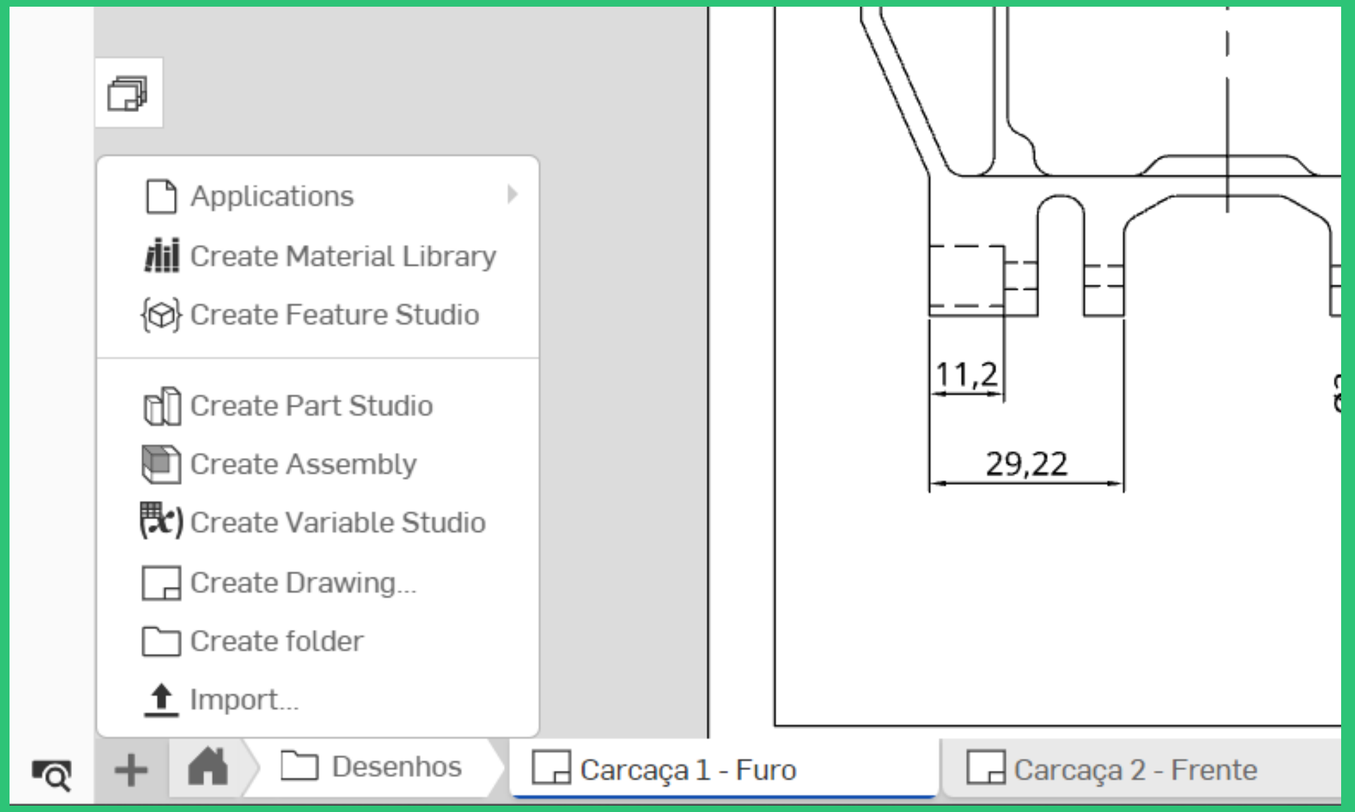
Muitas coisas...



3

Gerar desenhos técnicos

Muitas coisas...

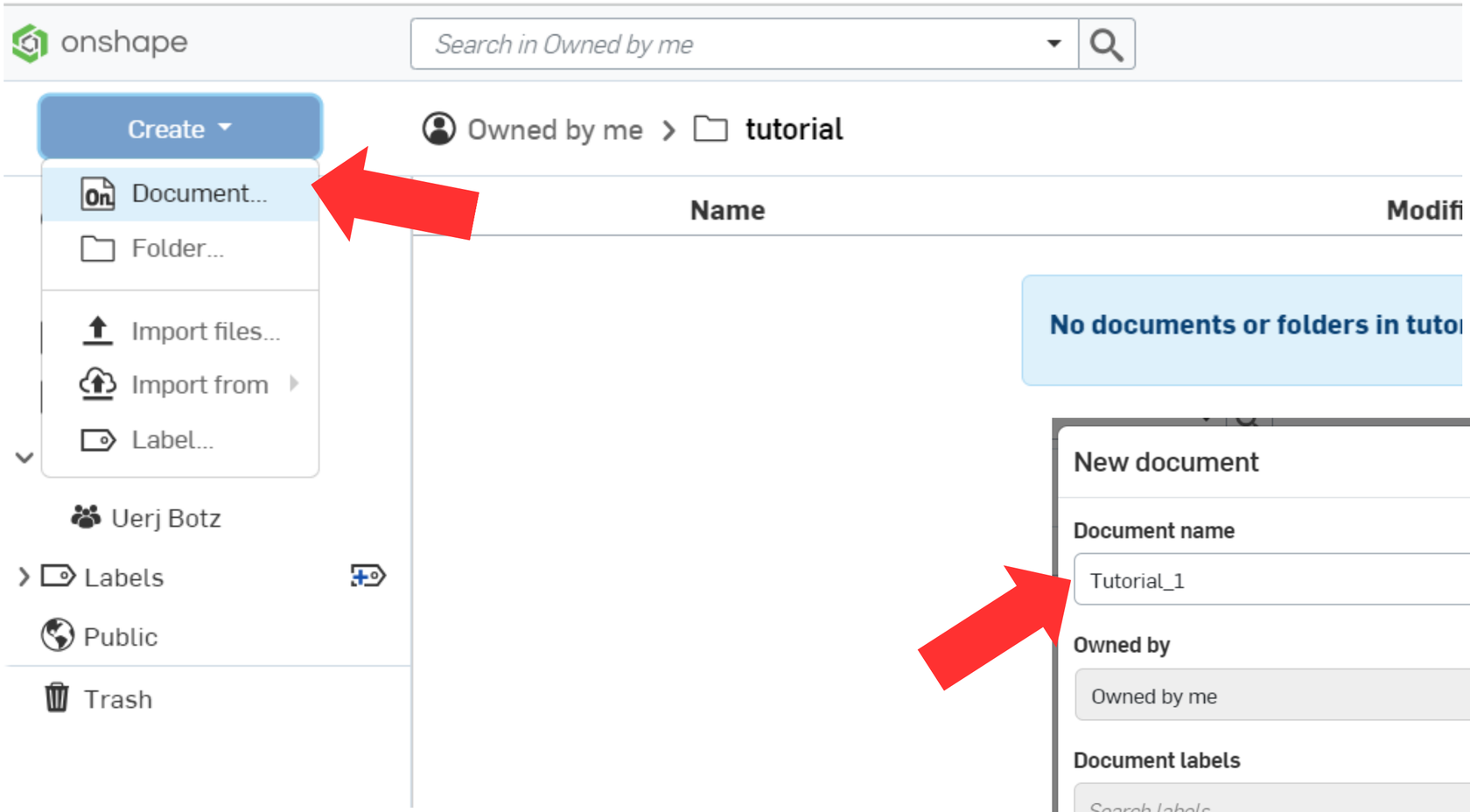


4

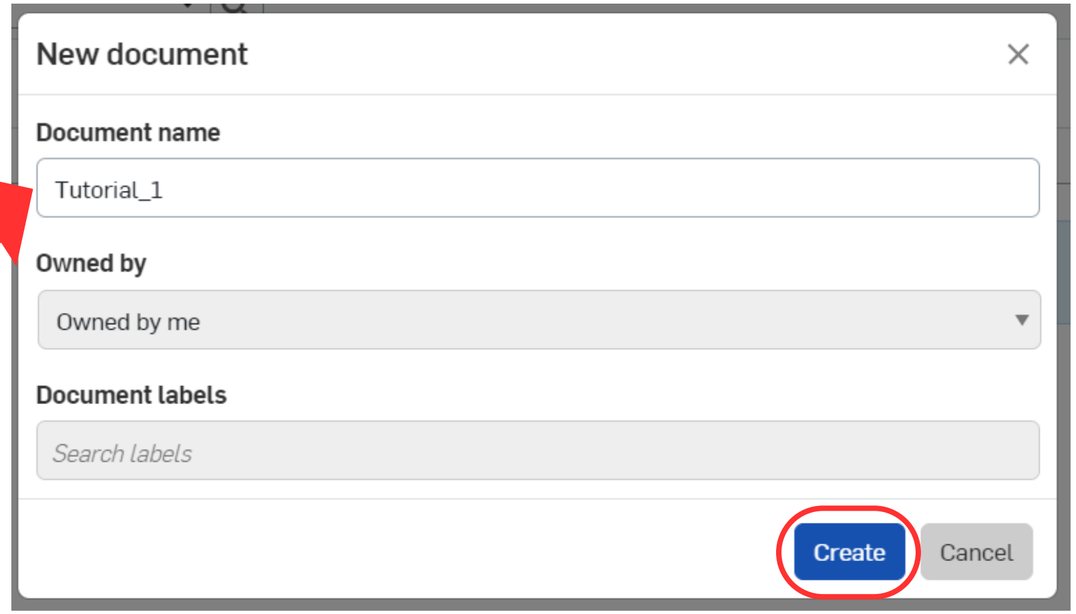
Outras funções...

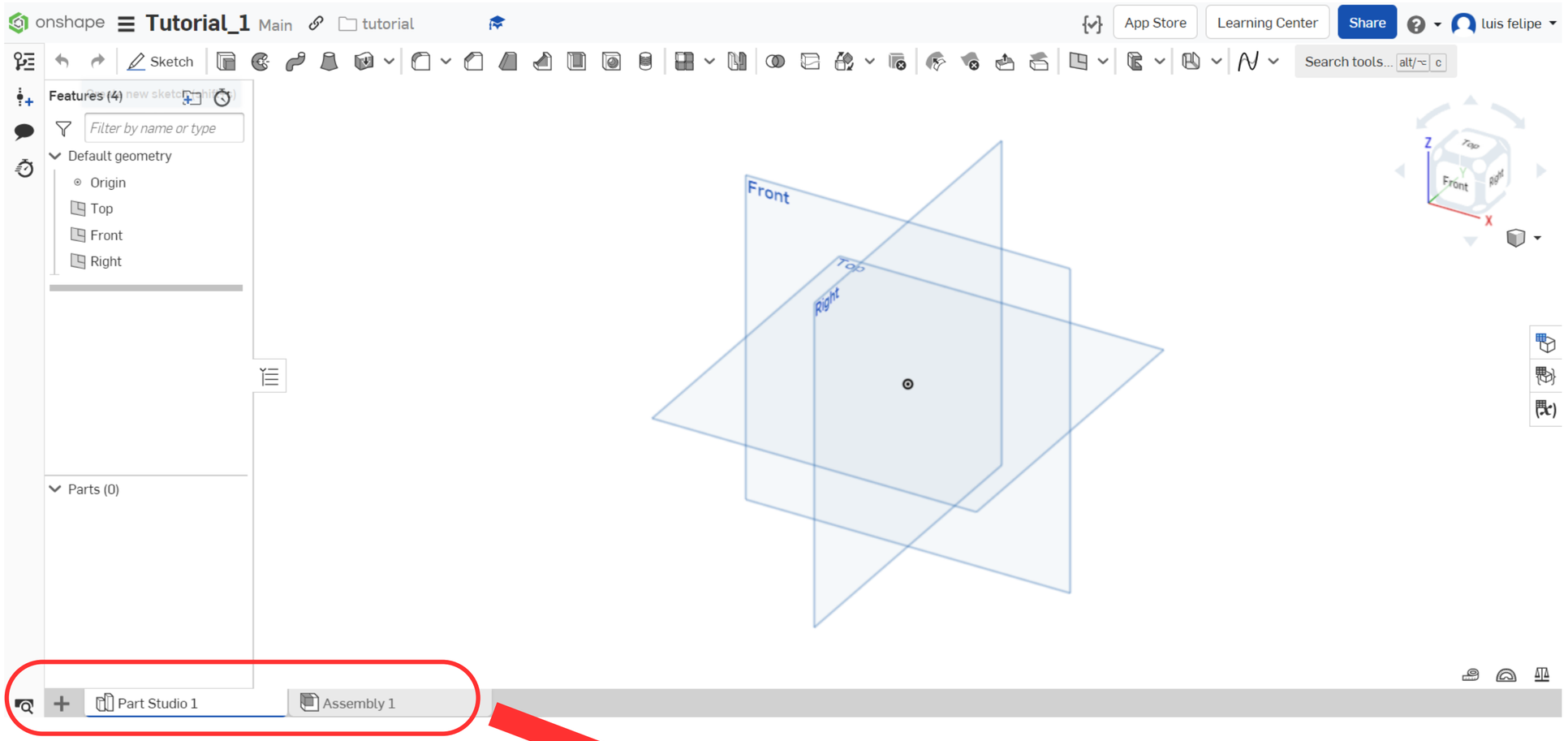

Vamos começar!

Criando um arquivo

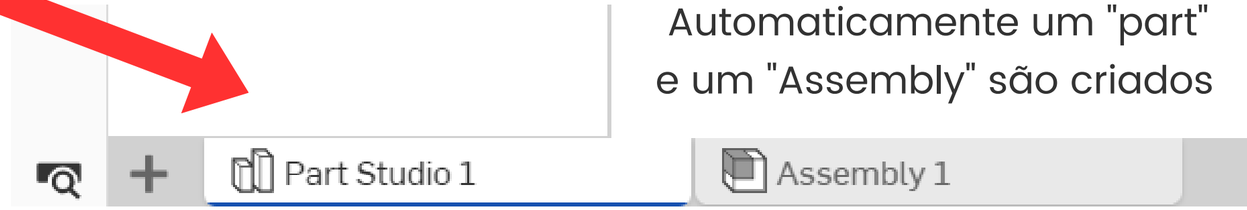


coloque um nome



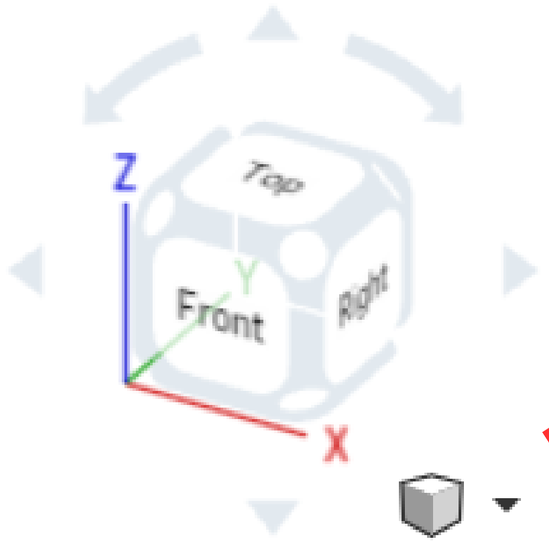


Pronto o primeiro arquivo ja foi criado!



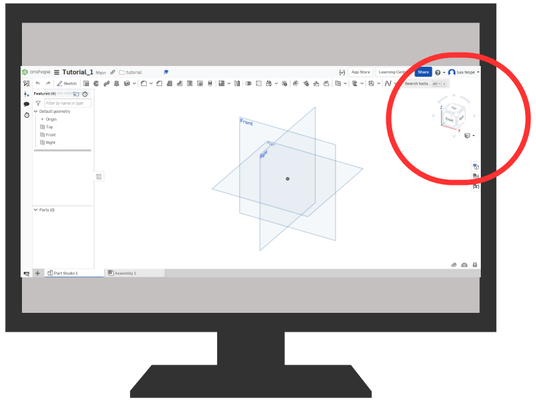
Automaticamente um "part" e um "Assembly" são criados

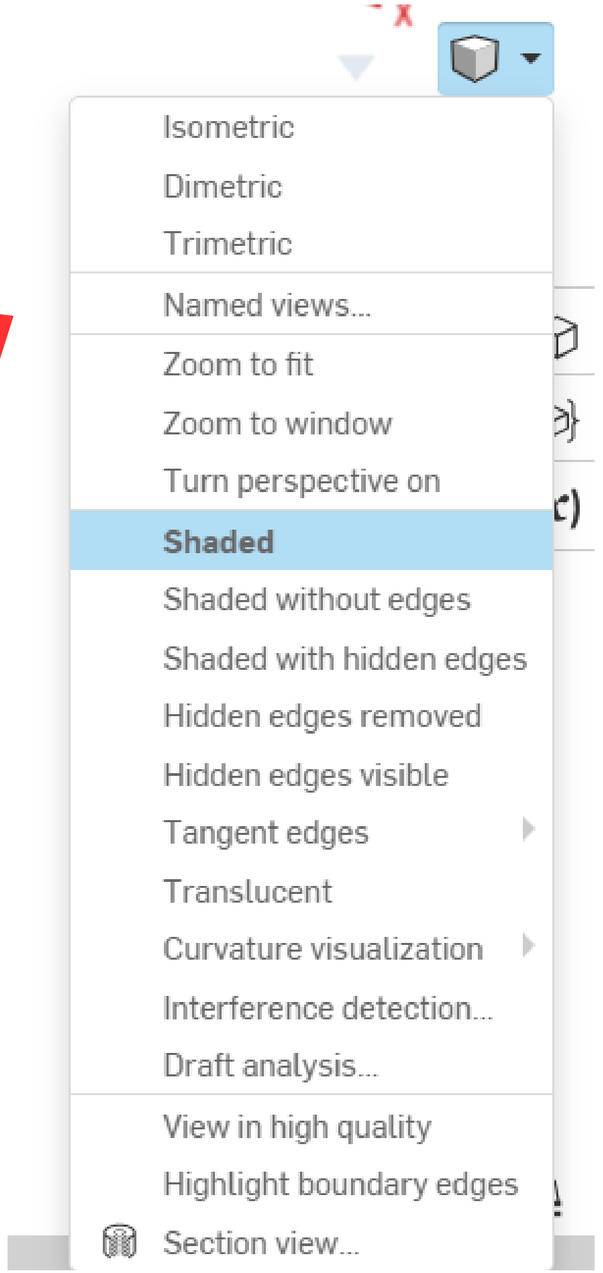
Vamos observar algumas coisas...



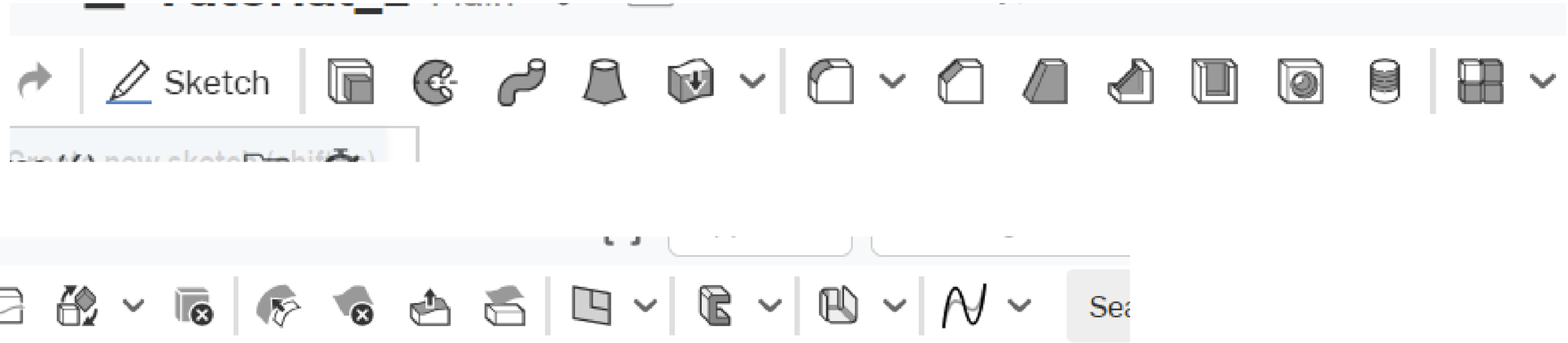
Aqui podemos mexer no angulo de visão de nosso objeto ou montagem

Podemos selecionar varias formas de visualização

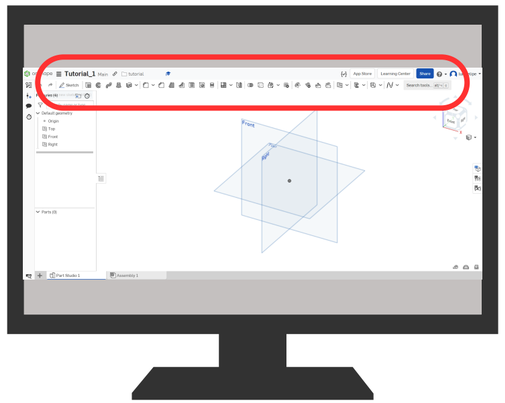




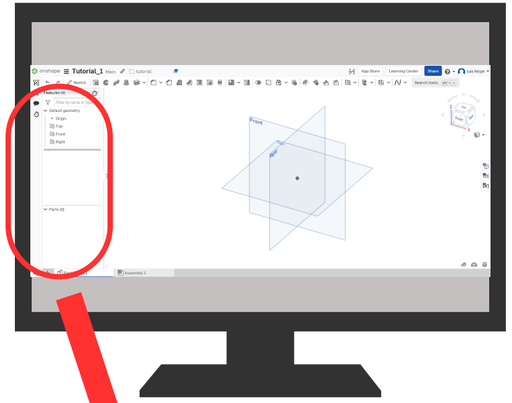
Vamos observar algumas coisas...

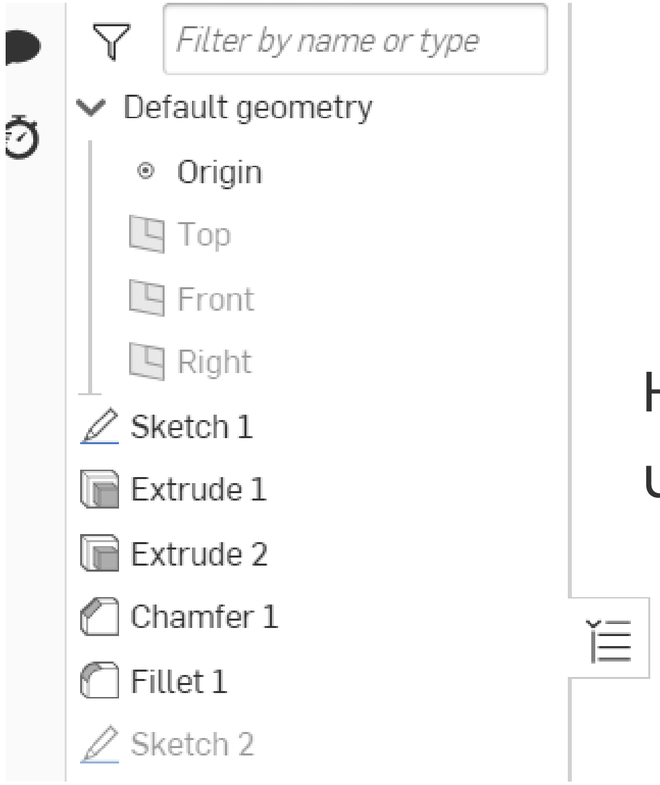


Temos diversas ferramentas que podemos usar!



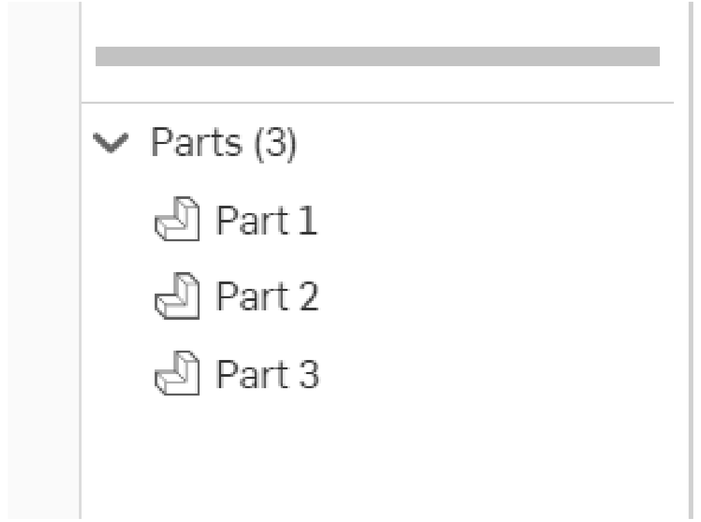
Vamos observar algumas coisas...



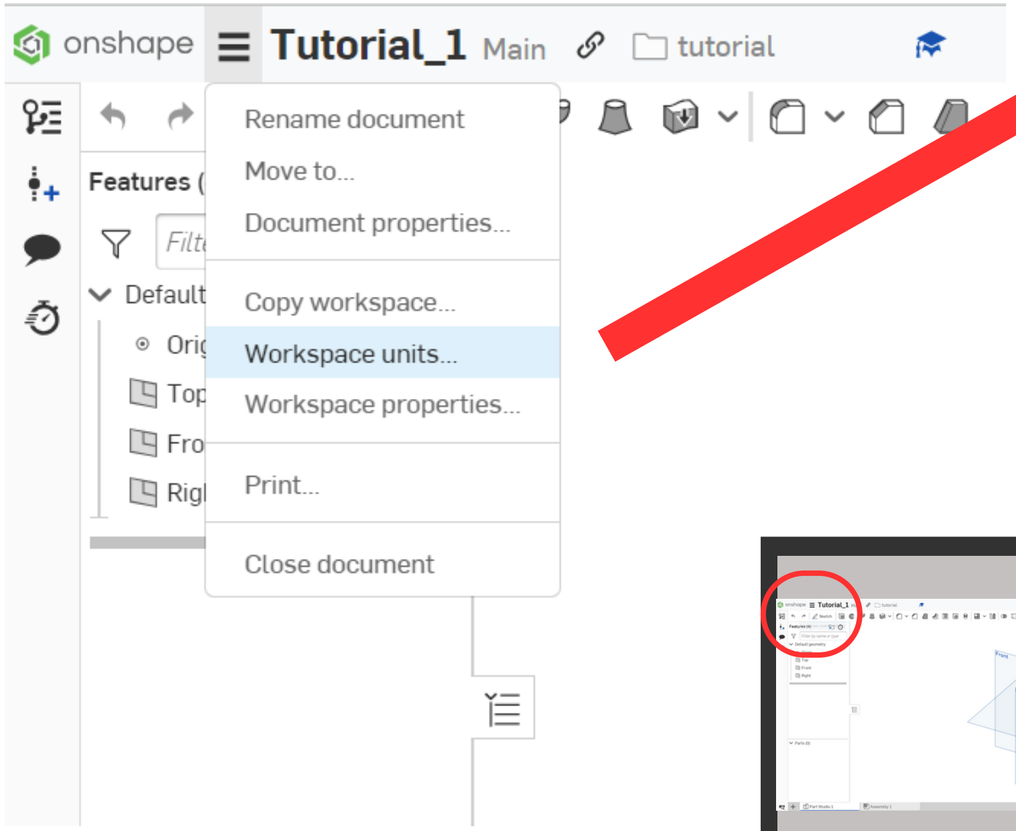


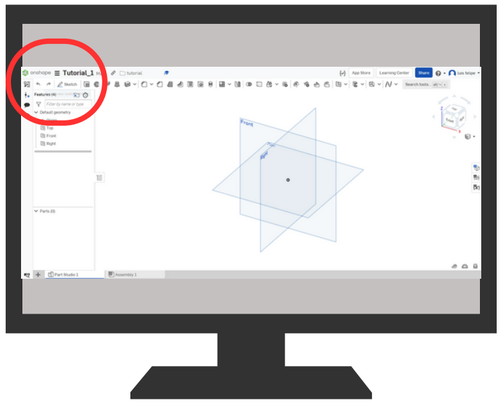
Histórico das ferramentas utilizadas

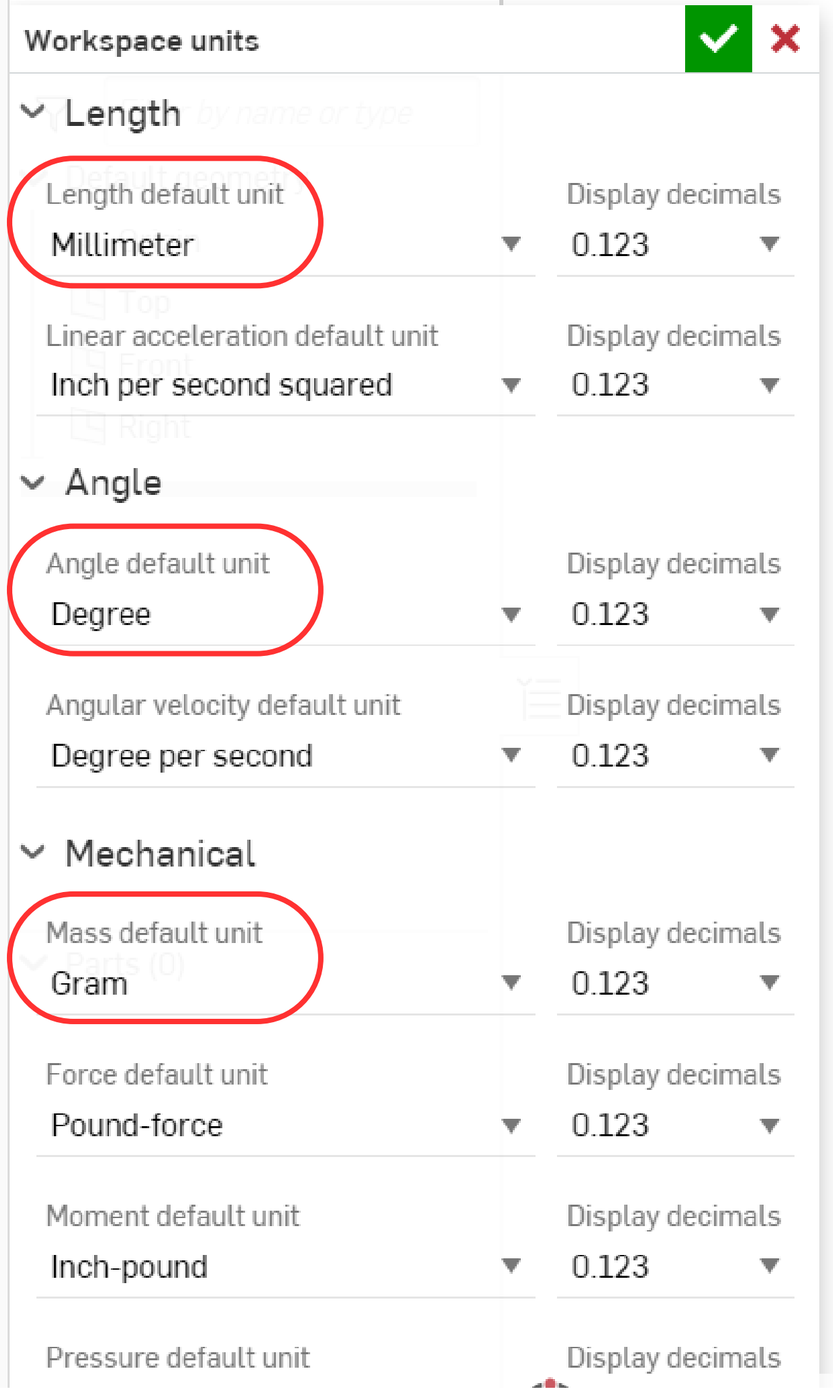
Peças criadas



Ajustar as unidades é importante!



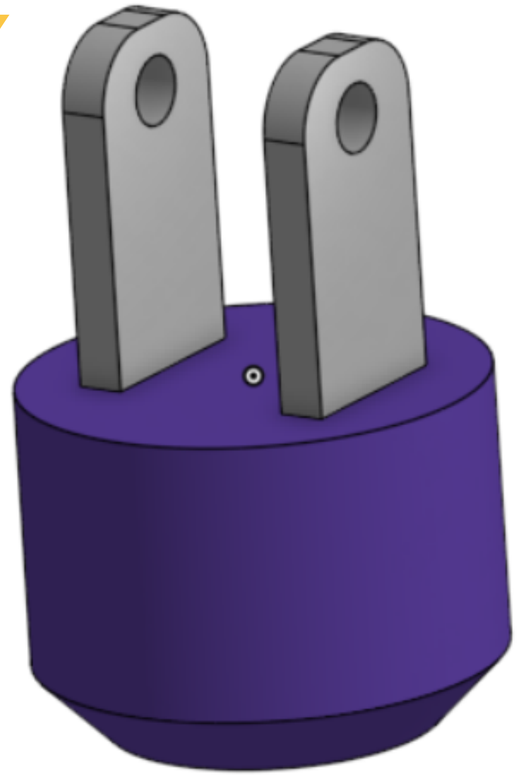


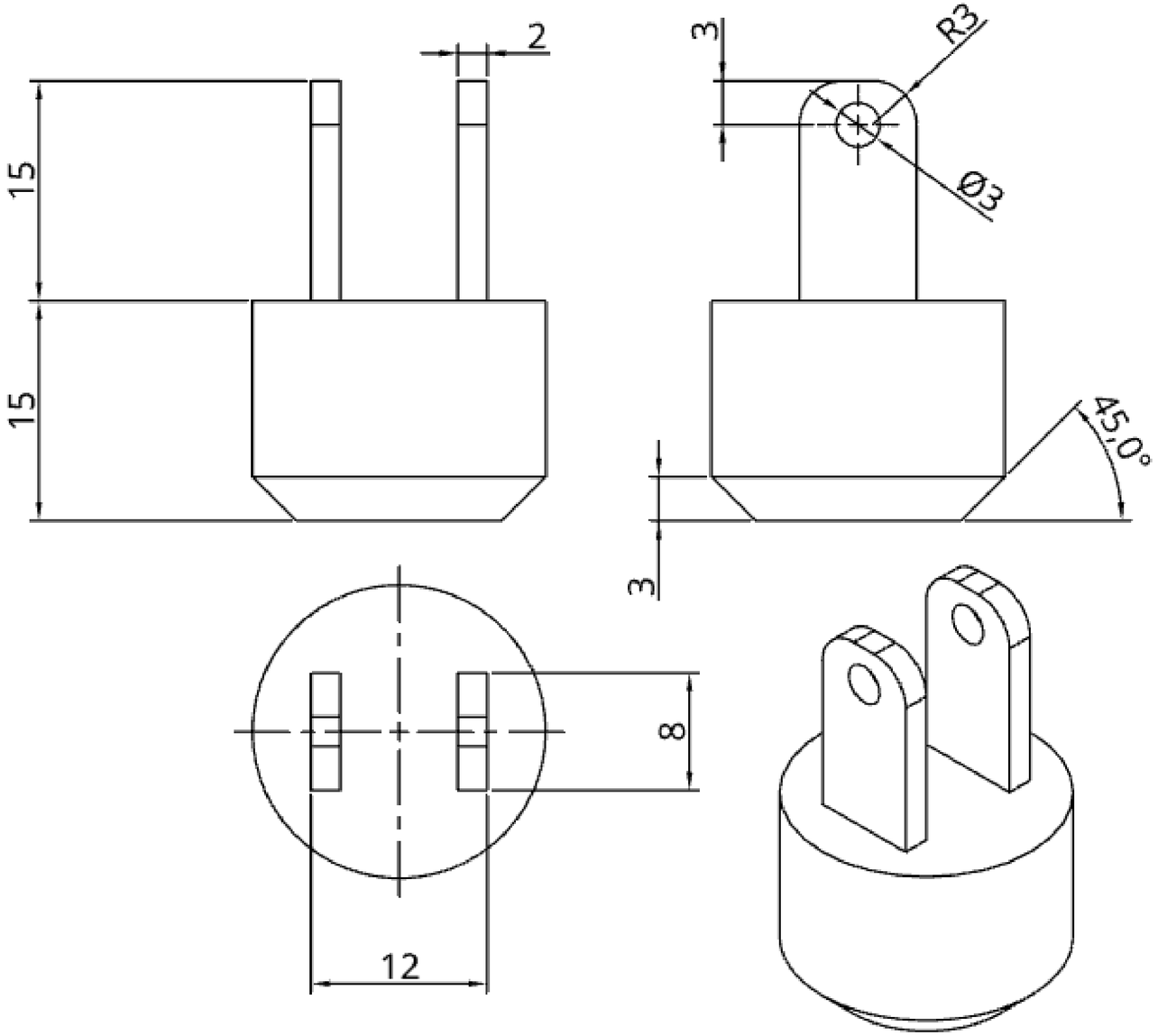


PARTE 1:

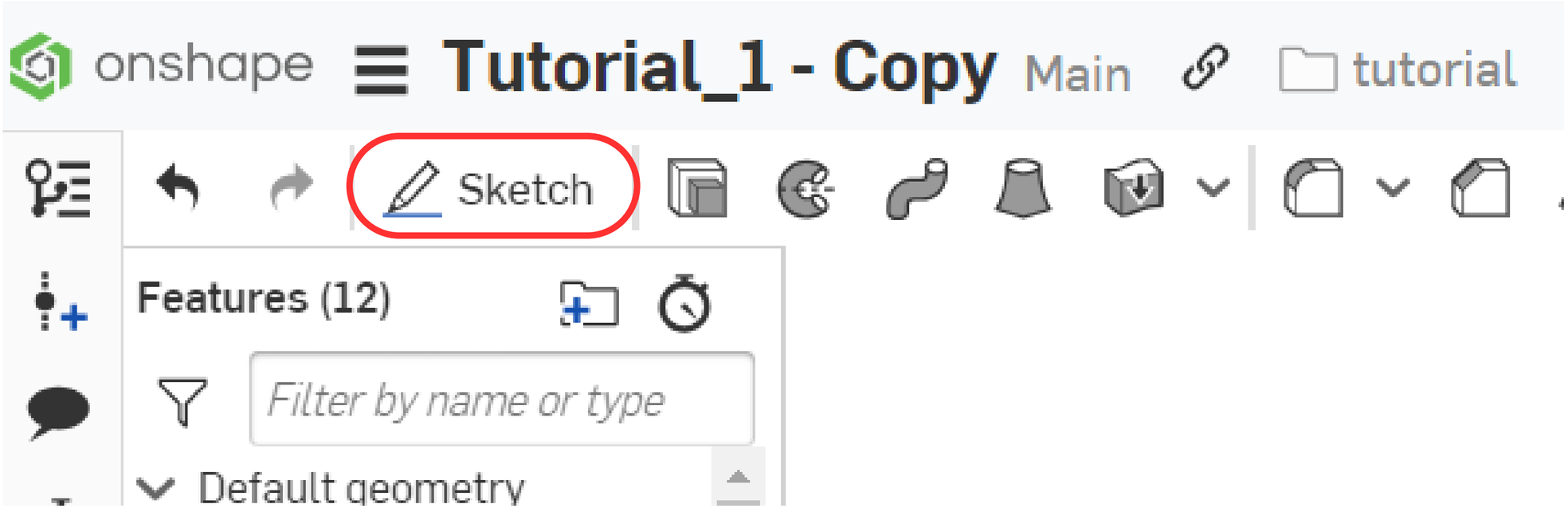
Vamos fazer uma peça!

Nossa peça

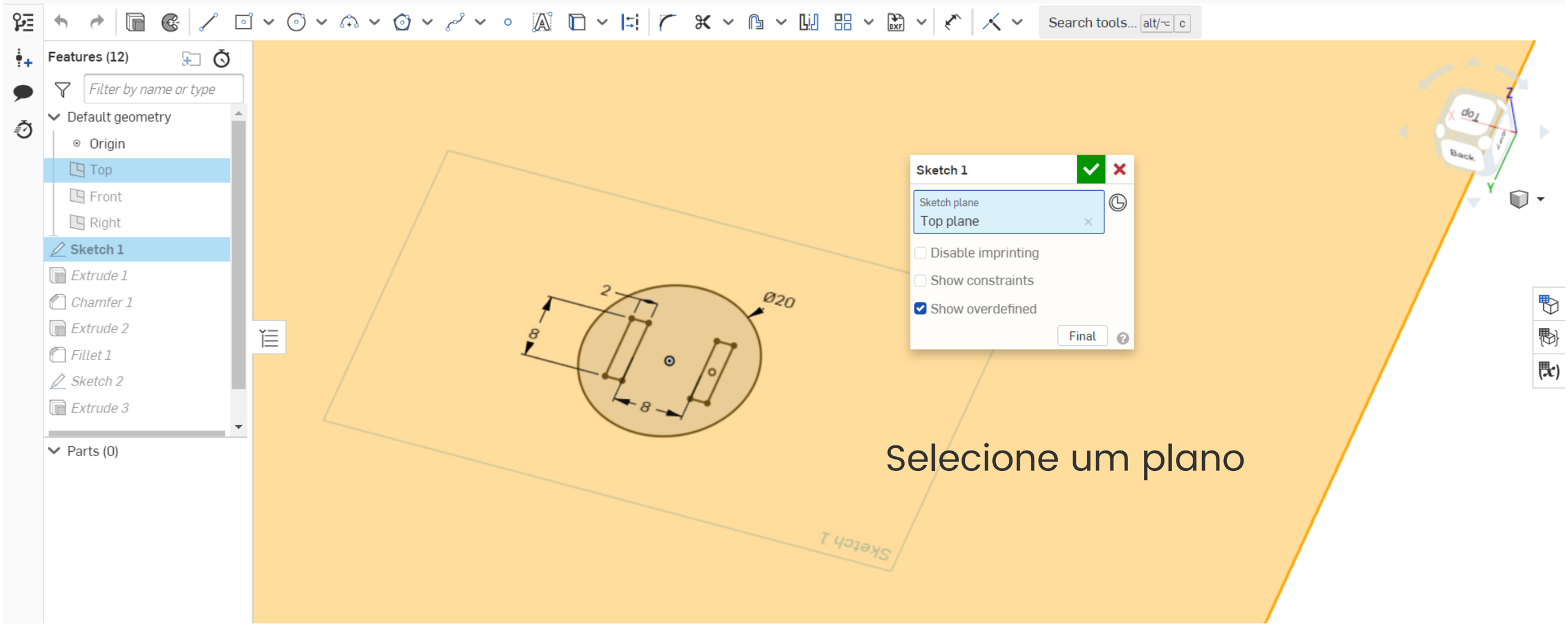




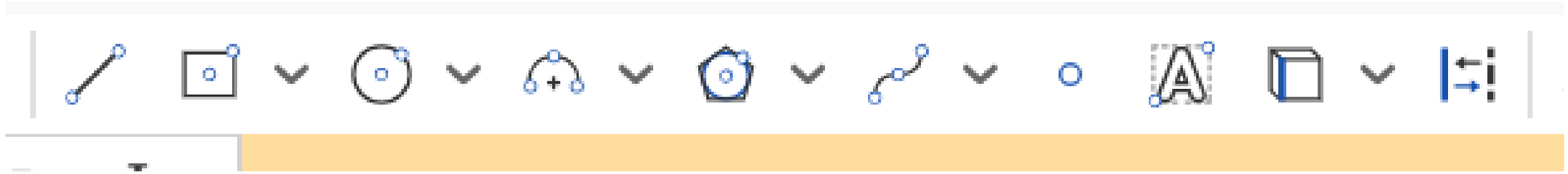
Criando um Sketch

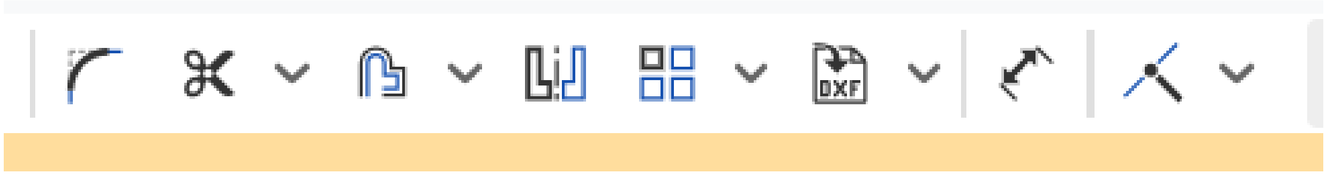


Criando um Sketch



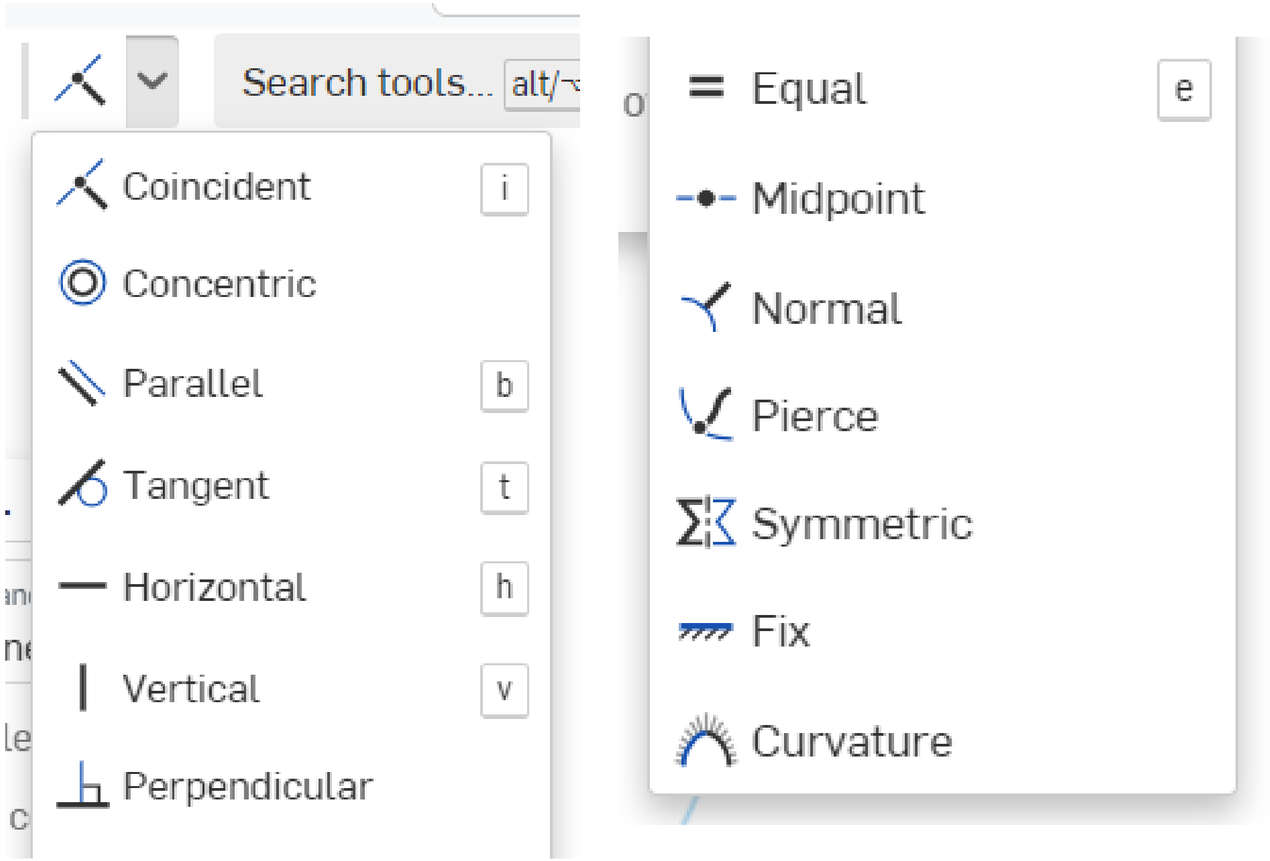
Criando um Sketch





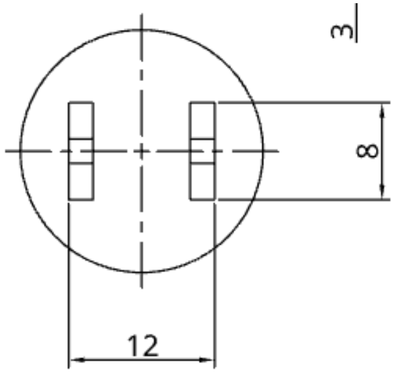
Em um sketch podemos criar desenhos 2D usando formas simples, como circulos e retangulos. Além disso precisamos cotar os desenhos de modo que a geometria fique definida.

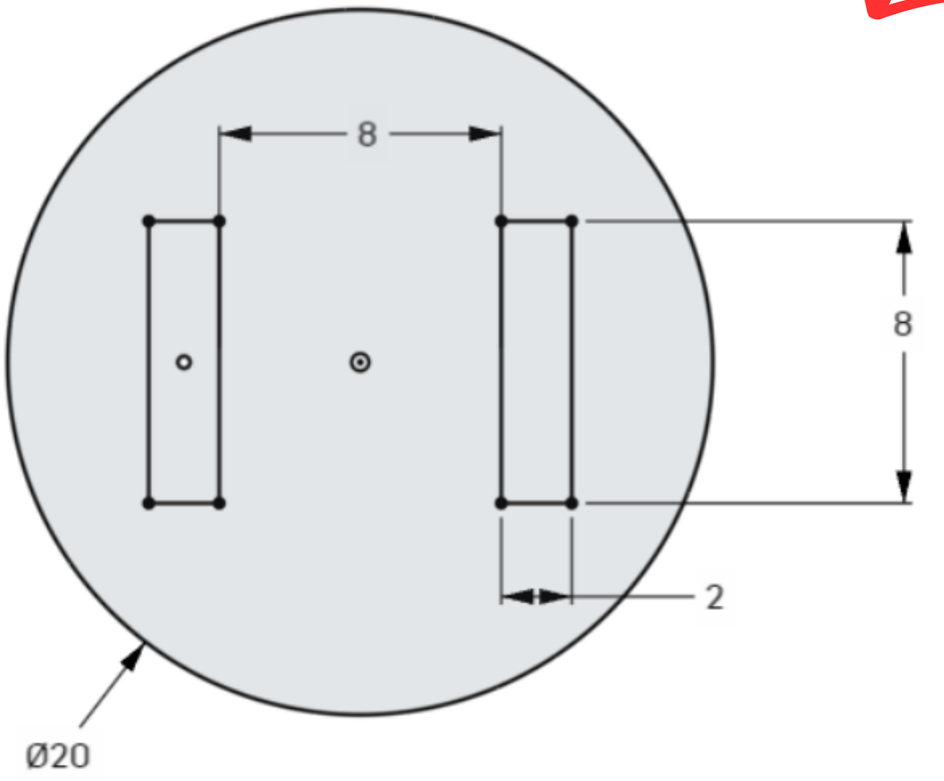
Criando um Sketch

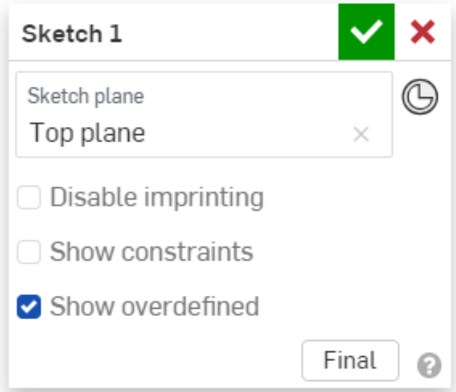


Constrains são limitações quando a propriedades geométricas

Criando um Sketch

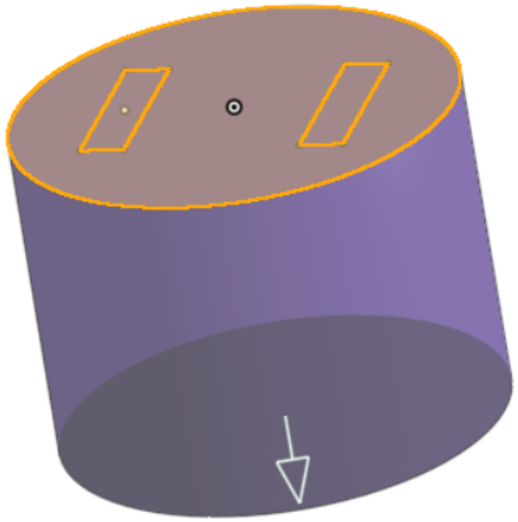


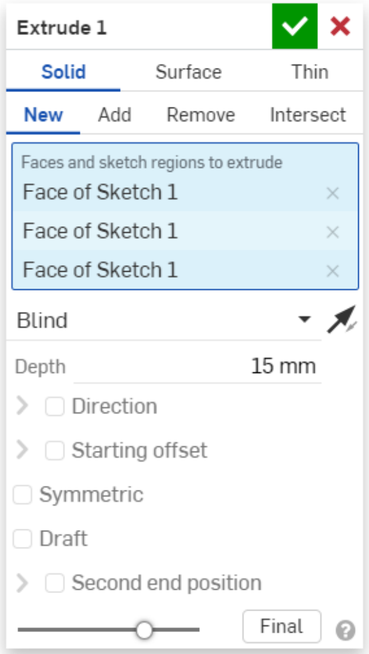




Usando o desenho imaginamos como podemos montar a peça

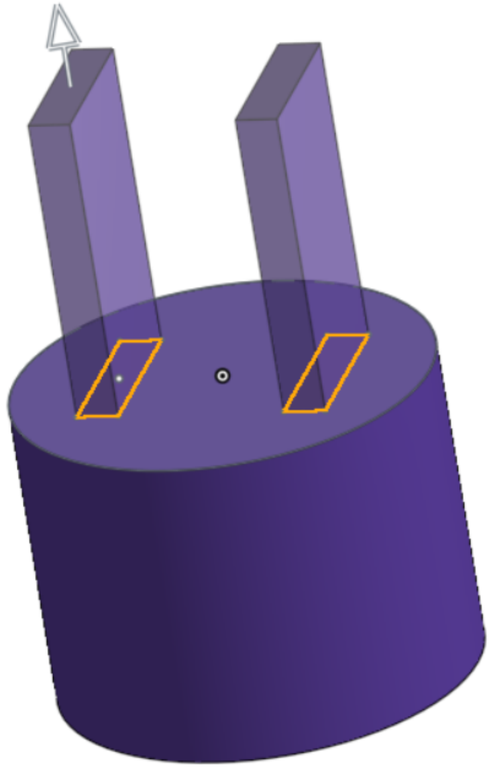
A ferramenta de Extrude

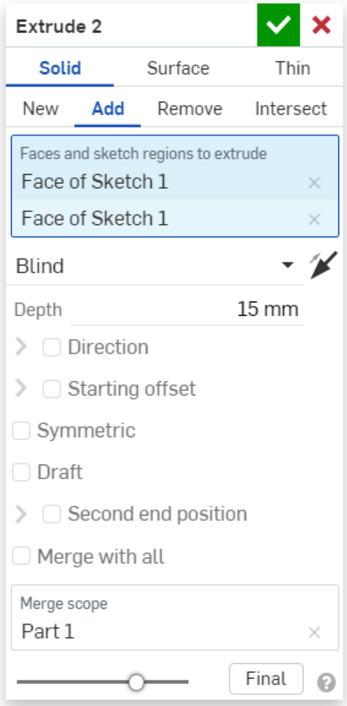




Esta ferramenta pode adicionar ou remover material a partir de uma figura plana. Em resumo ela da altura a uma figura 2D.

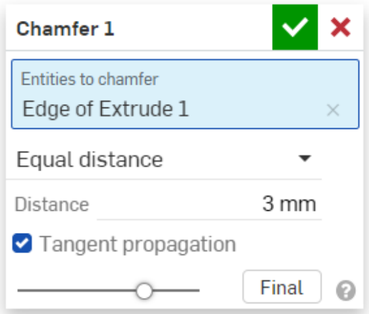
A ferramenta de Extrude



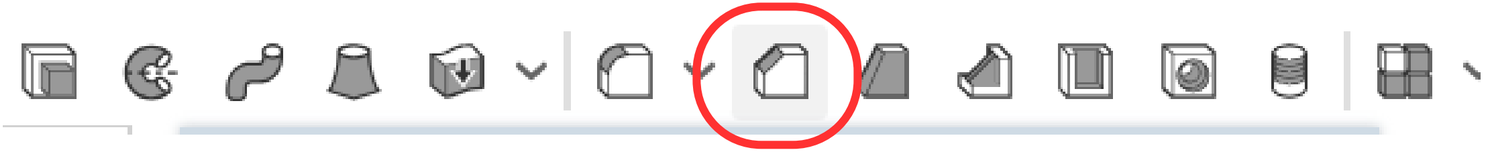


Esta ferramenta pode adicionar ou remover material a partir de uma figura plana. Em resumo ela da altura a uma figura 2D.

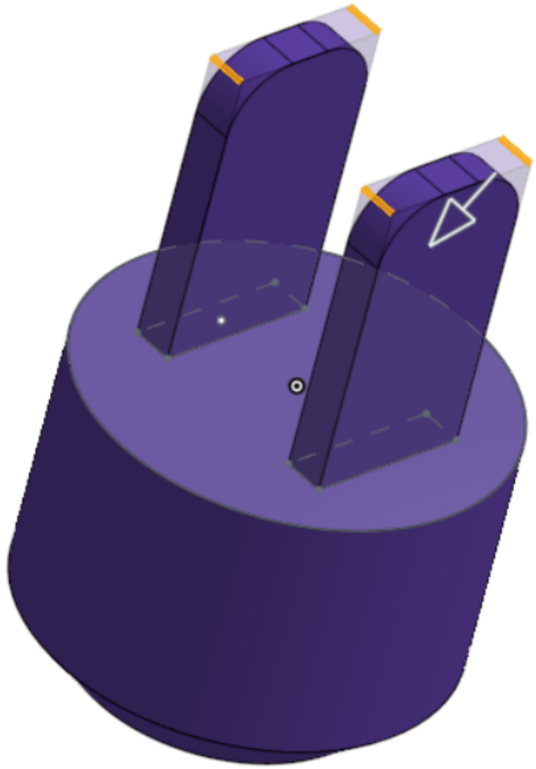
A ferramenta Chamfer

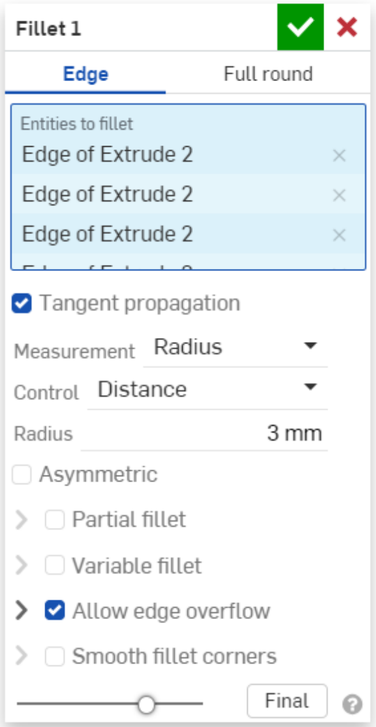


Esta ferramenta cria planos retos a partir de seguimentos de retas.



A ferramenta Fillet





Esta ferramenta permiter arredondar bordas.

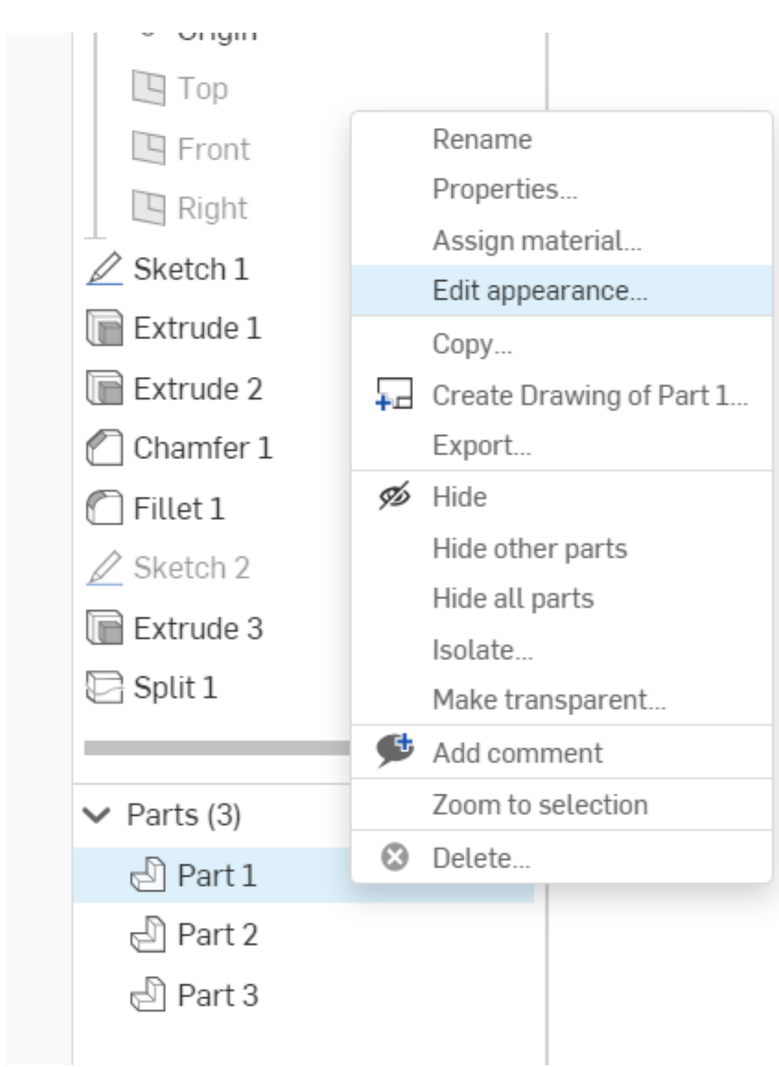
DESAFIO:

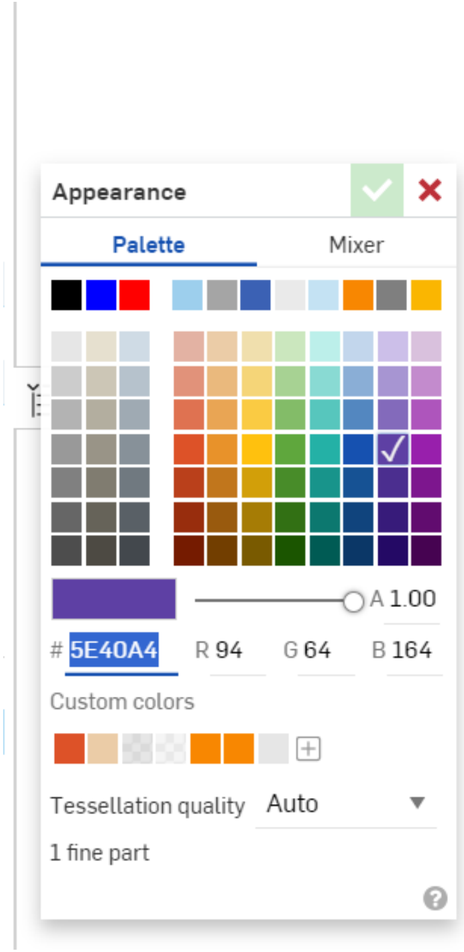
Agora é com você!
Termine a ultima parte ;)

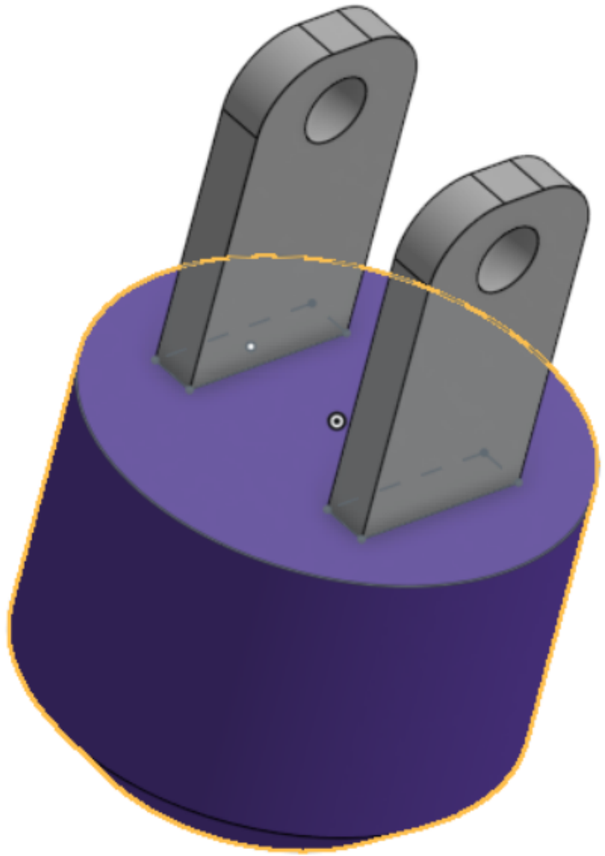
PARTE 2:

Editando propriedades das peças

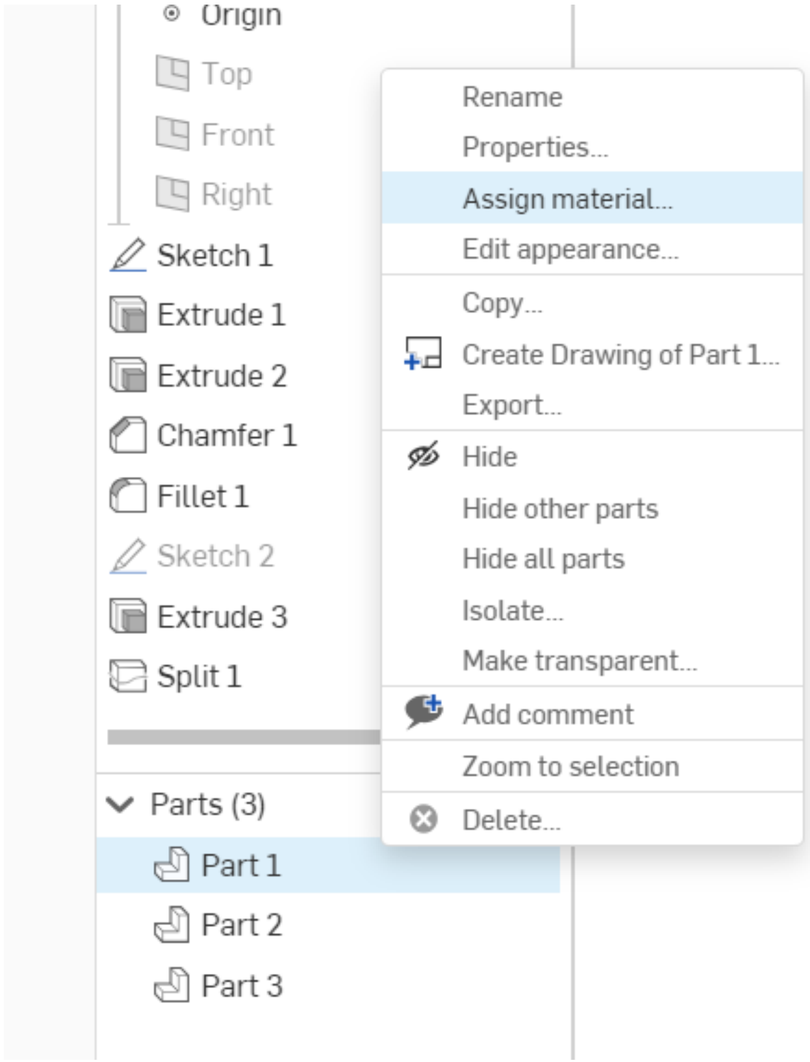
Alterando cor

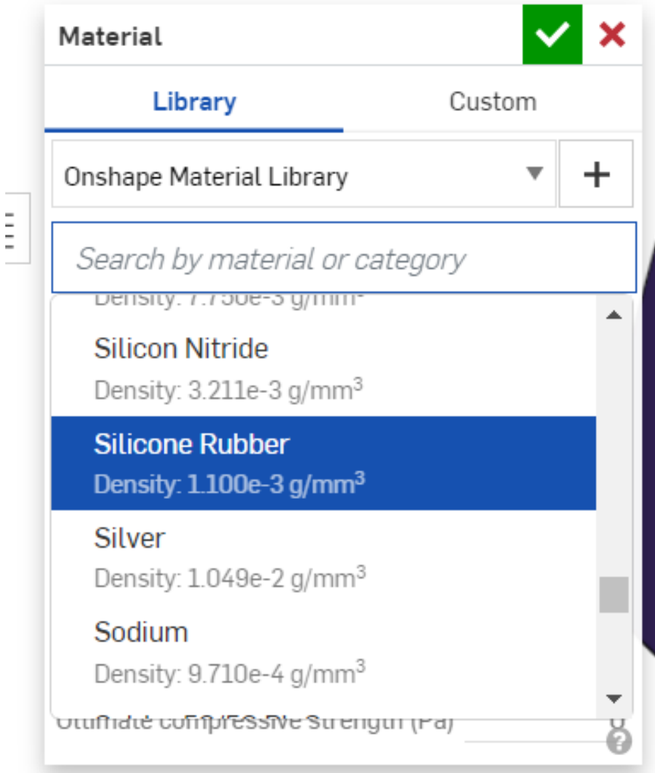


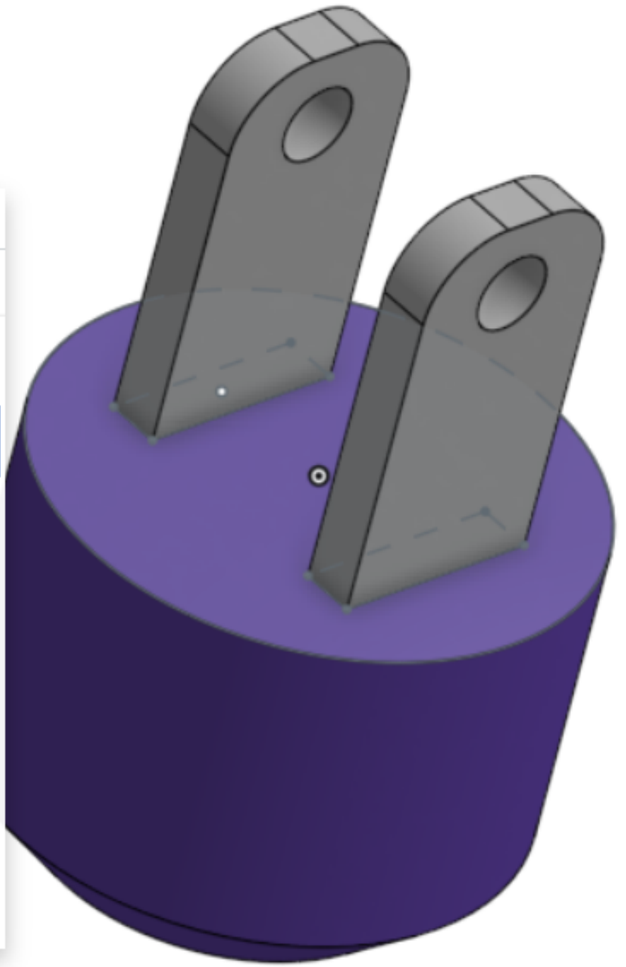




Alterando o material



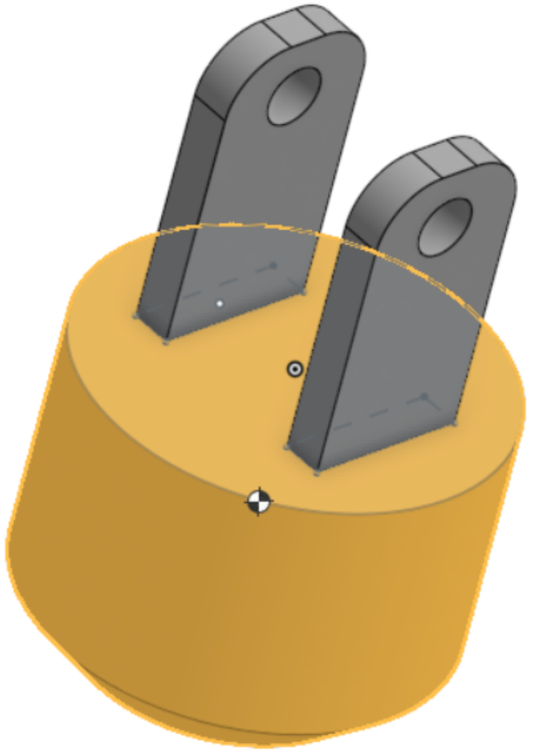




PARTE 3:

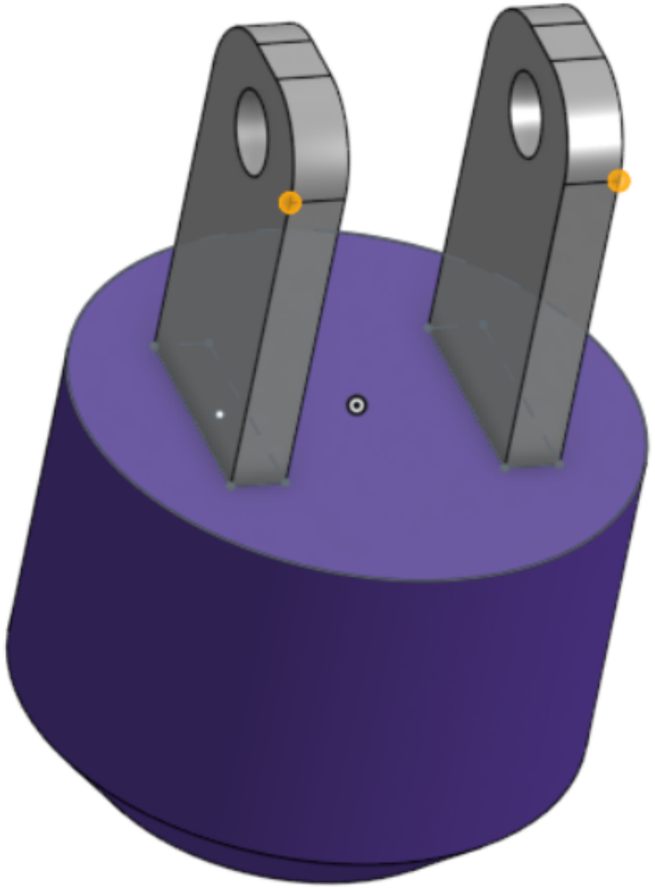
Fazendo medições

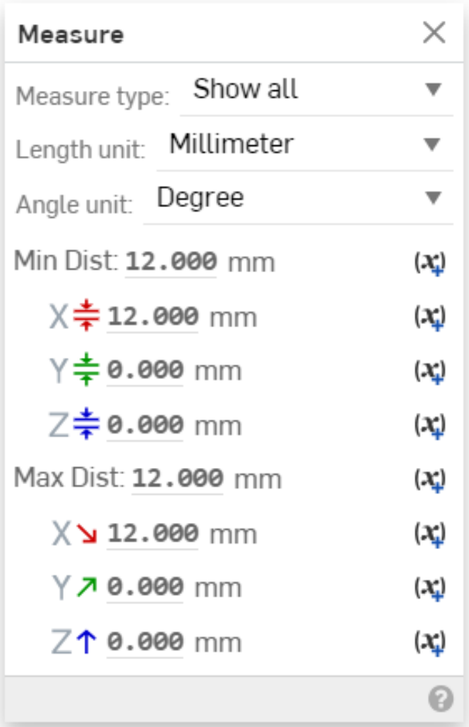
Medindo massa



Usando esta ferramenta é possivel calcular o volume, posição do centro de massa e peso do objeto!

Medições de distancias, raios e áreas



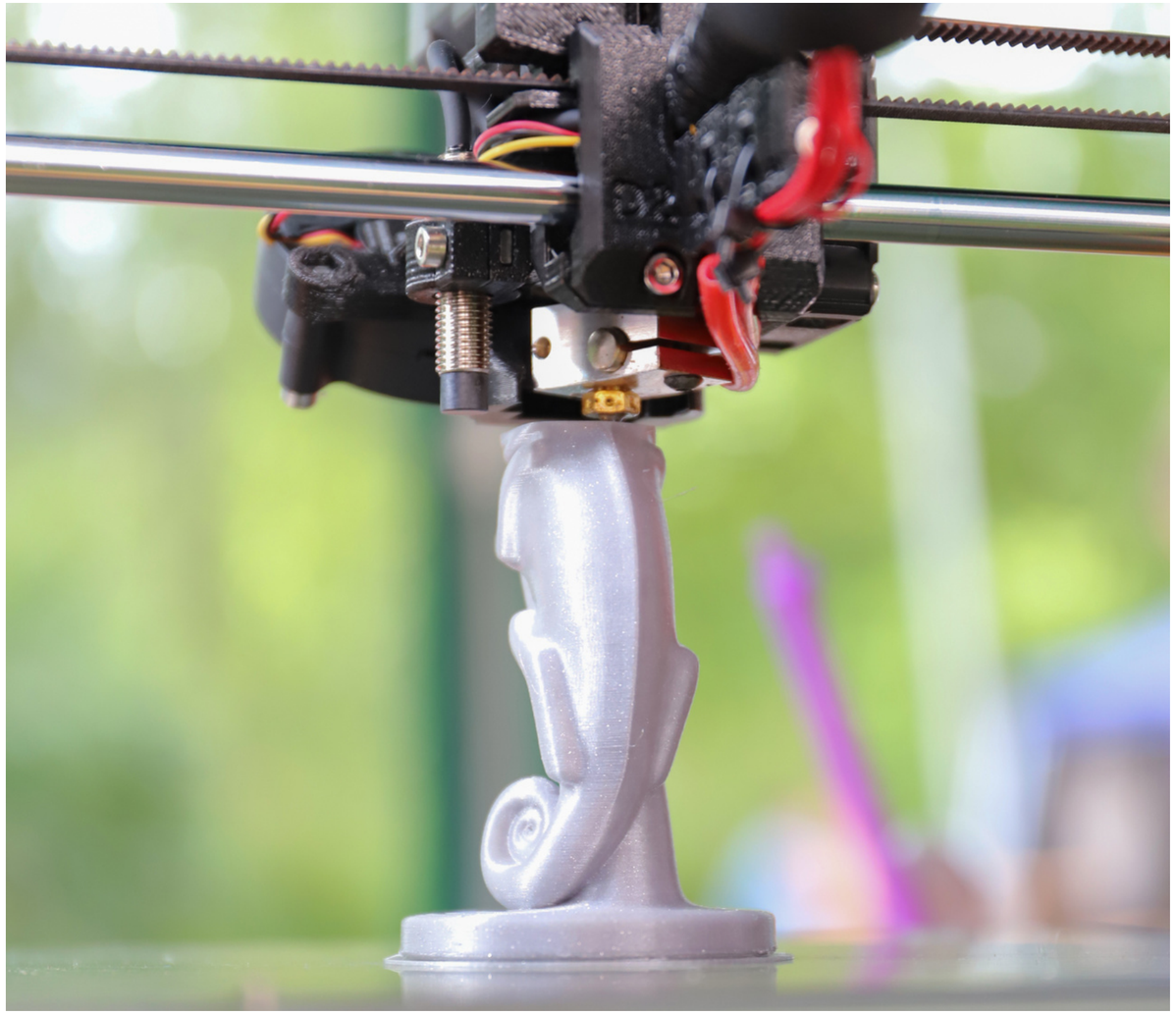


Usando este recurso podemos medir distâncias entre pontos, planos, retas, etc. Também é possivel medir raios e áreas.

PARTE 4:

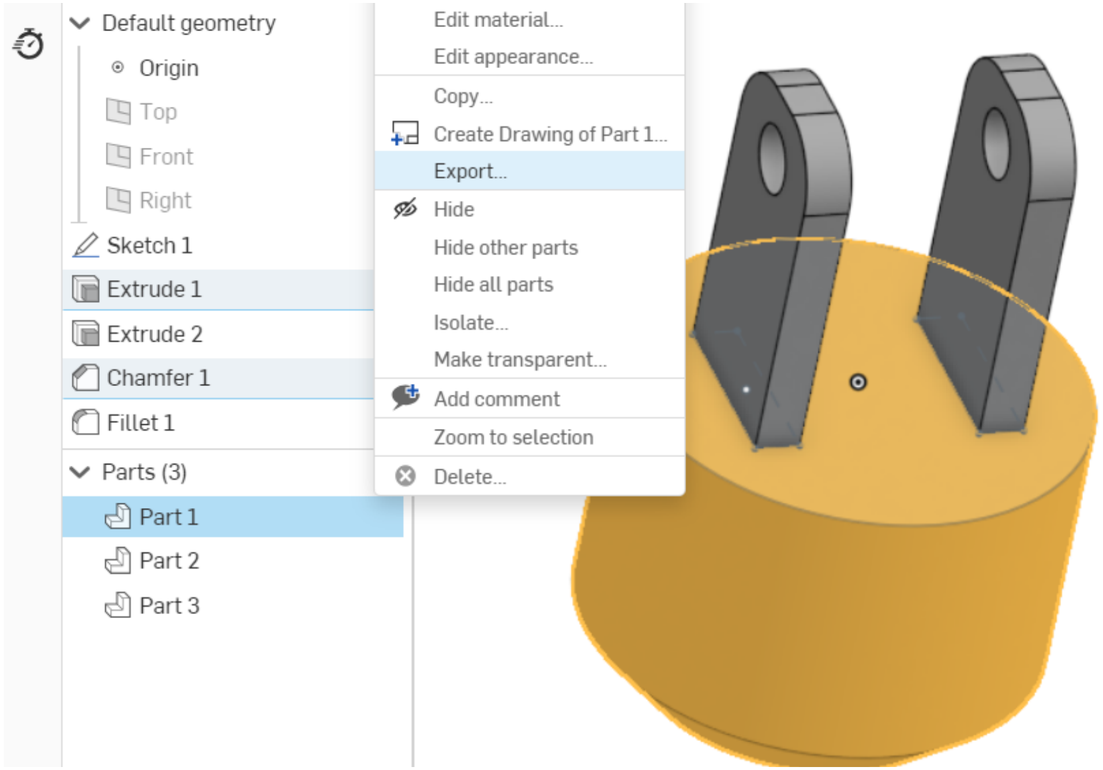
Exportando STL

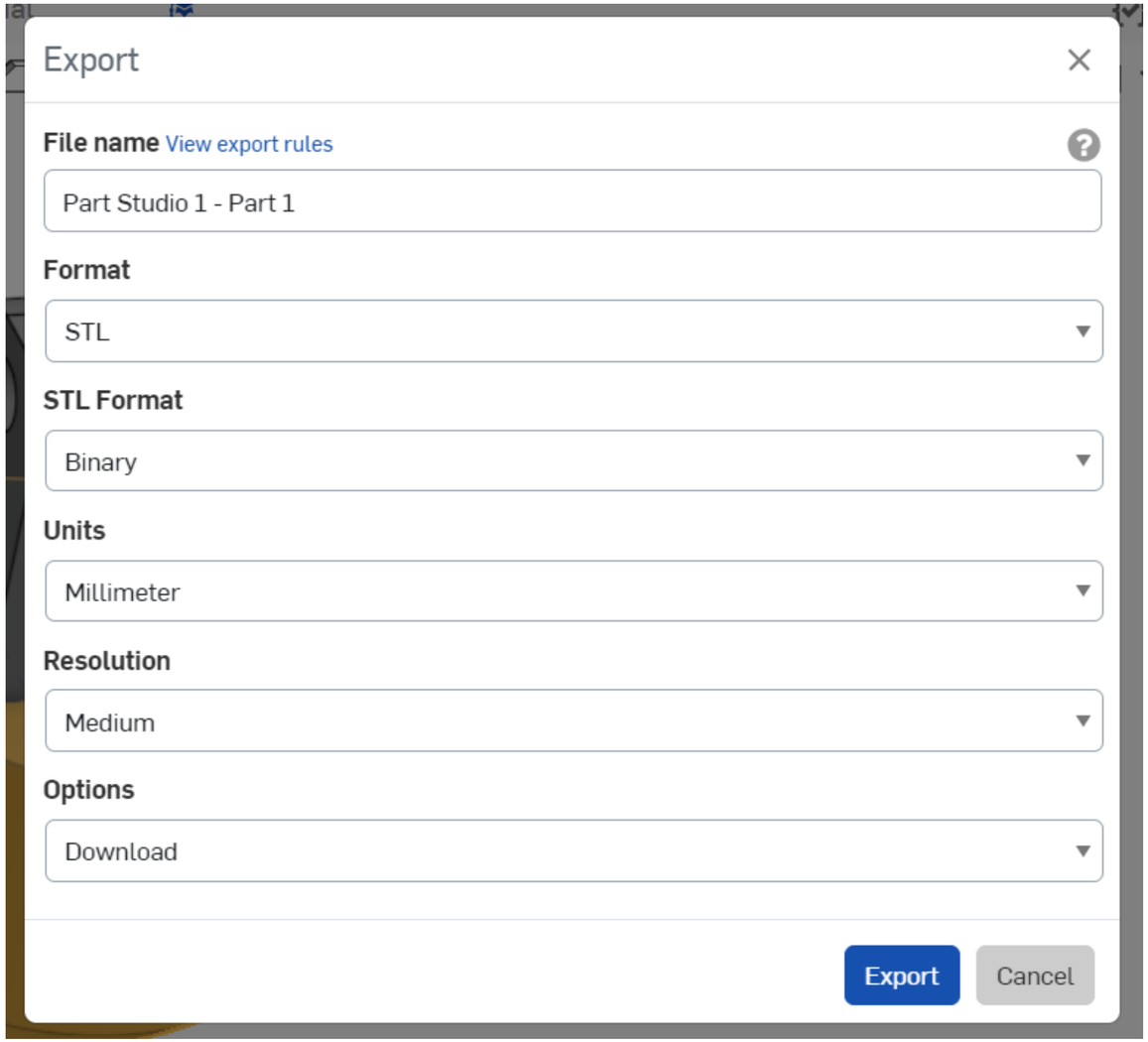
Exportando STL



Para impressão 3D o formato STL é um dos mais utilizados. Ele descreve um modelo sólido 3D.

Exportando STL



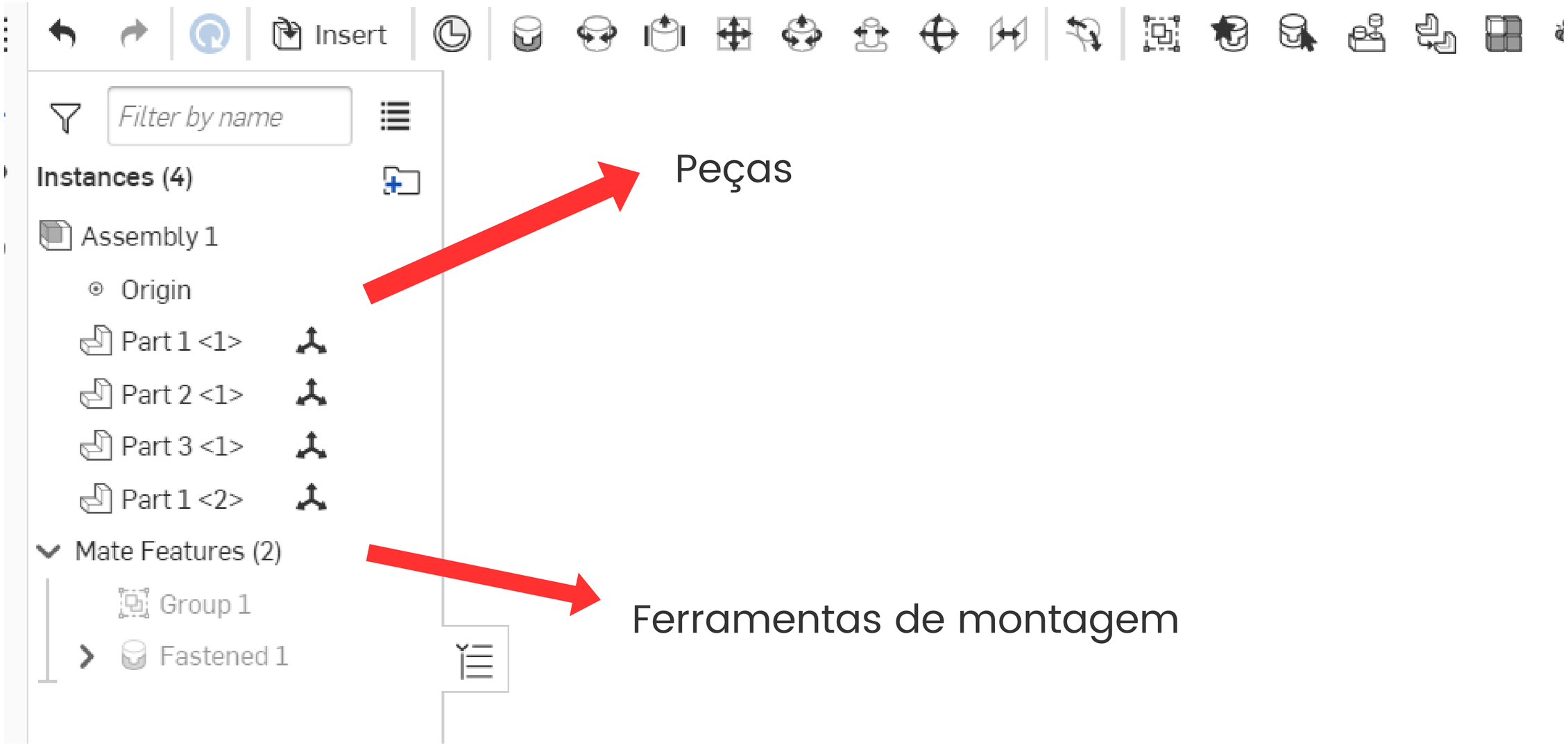


Clique com botão direito na peça que deseja exportar, depois clique em export.
Em seguida verifique o formato e a unidade. pronto o arquivo será baixado!

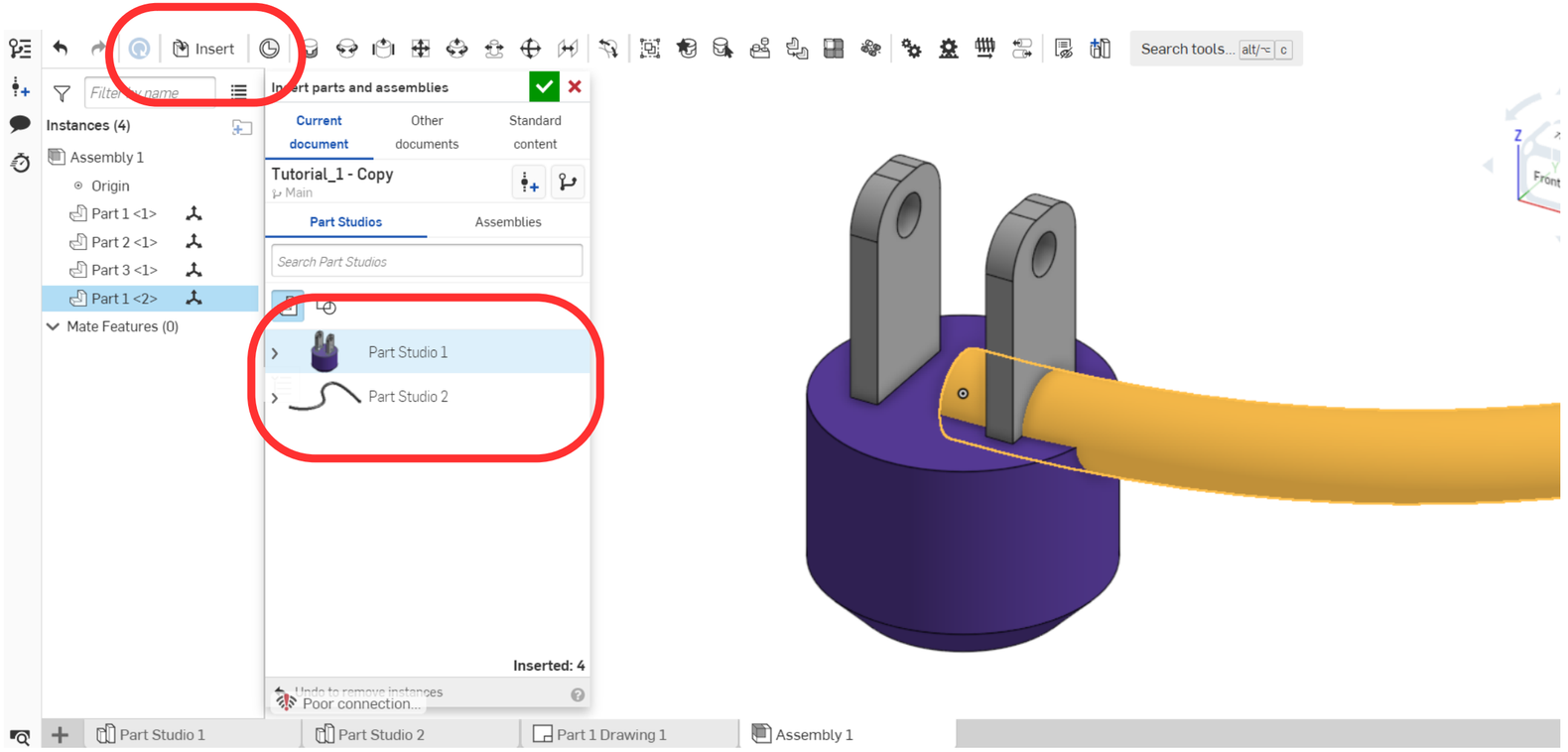
PARTE 4:

Fazendo uma montagem

Montagem

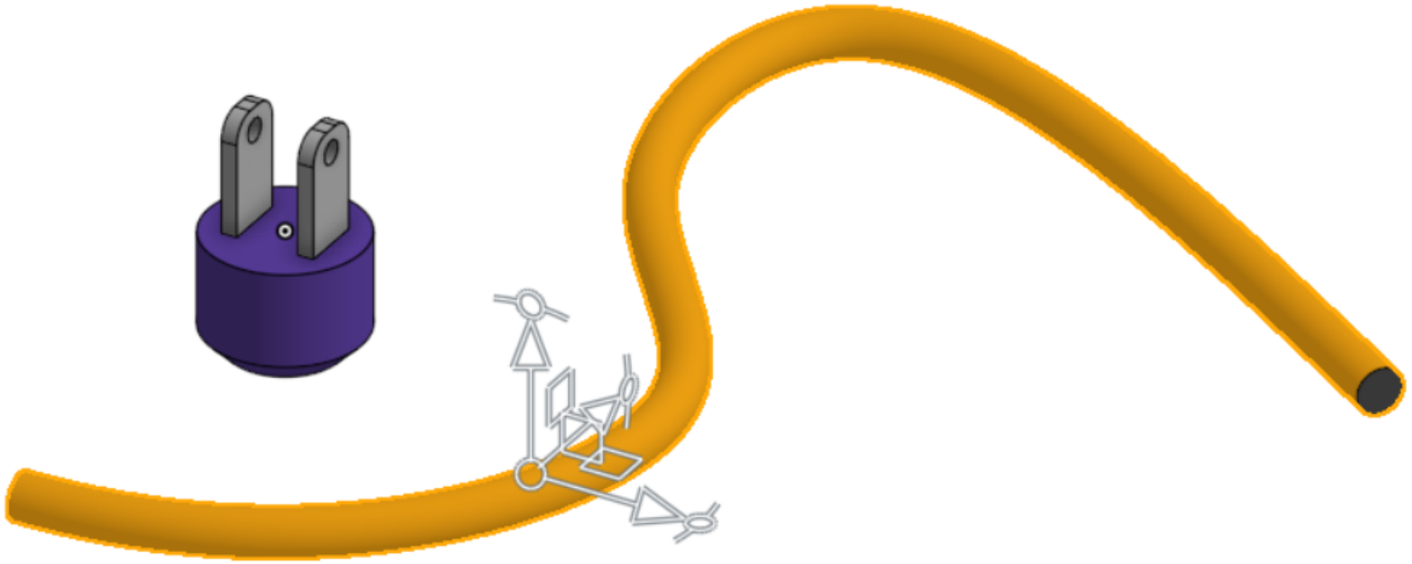

Insert
Filter by name
Instances (4)
Assembly 1
Origin
Part 1 <1>
Part 2 <1>
Part 3 <1>
Part 1 <2>
Mate Features (2)
Group 1
Fastened 1
Peças
Ferramentas de montagem

Inserindo peças



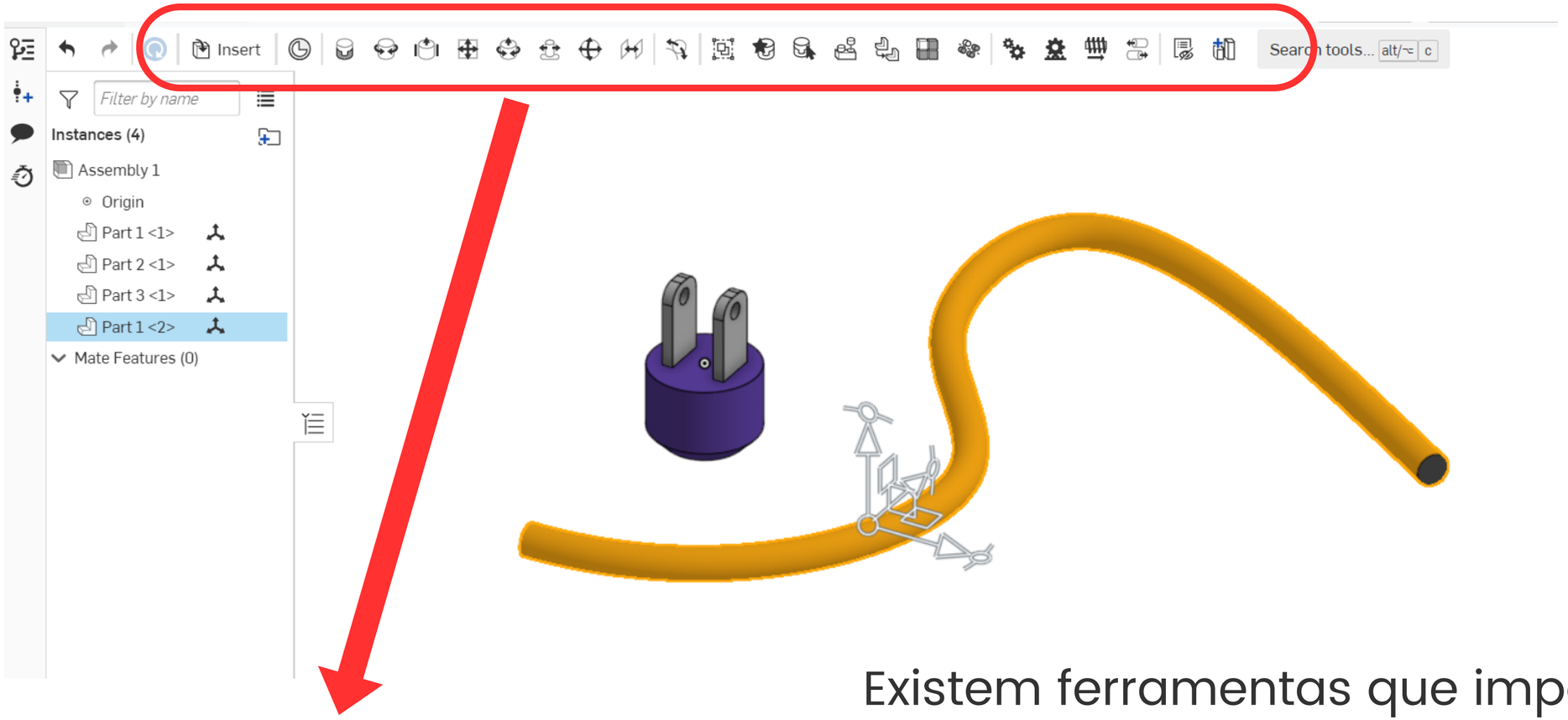
Primeiramente adicione as peças usando "insert".

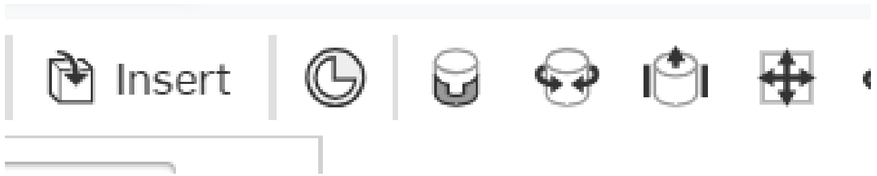
Montando...



É possivel movimentar e giras as peças livremente

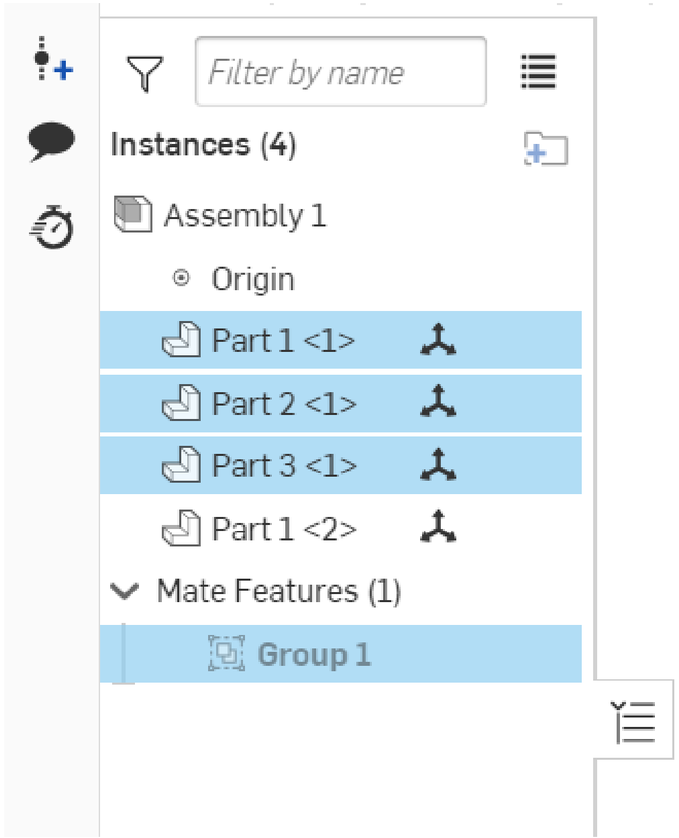
Montando...

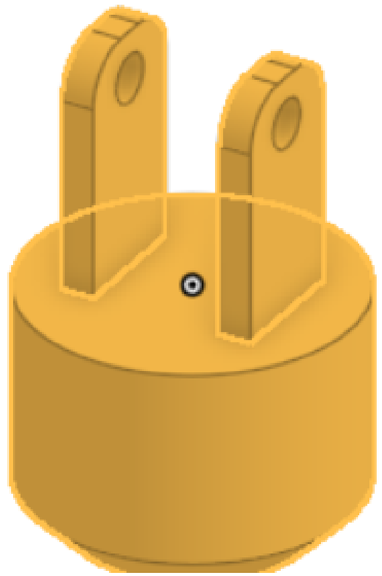


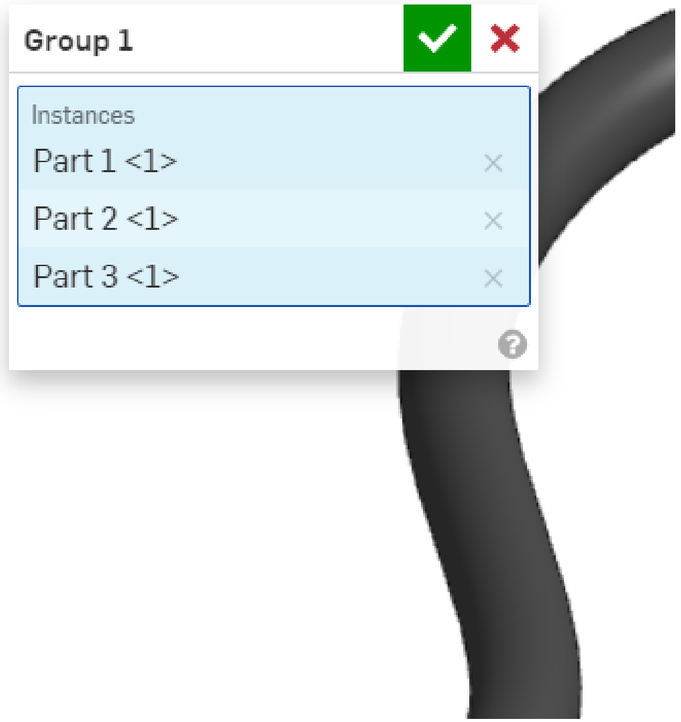


Existem ferramentas que impõem limites a movimentação, delimitando a forma como as peças são montadas.

Agrupando

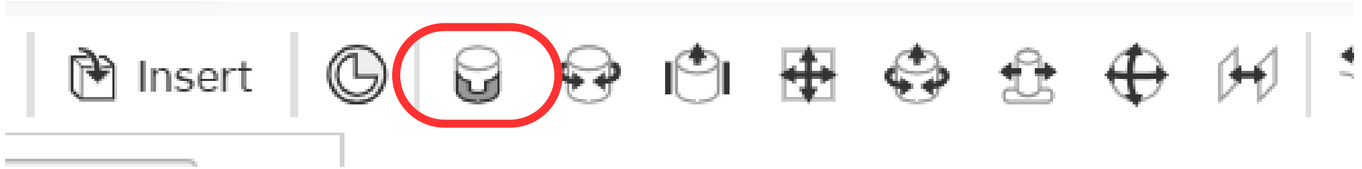


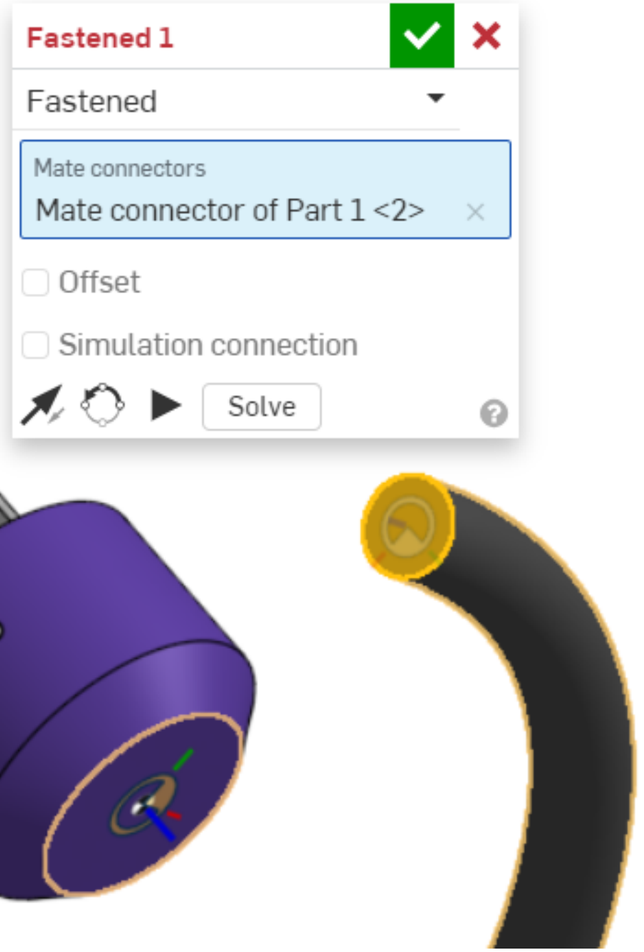


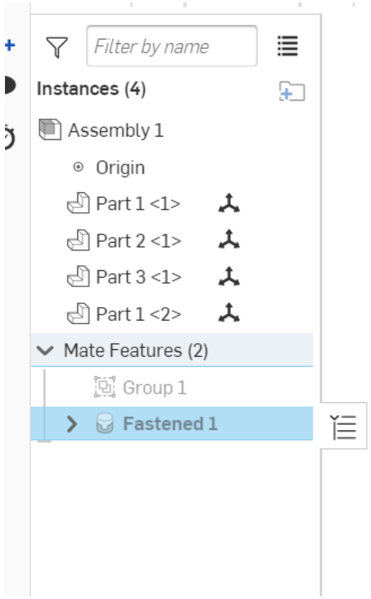


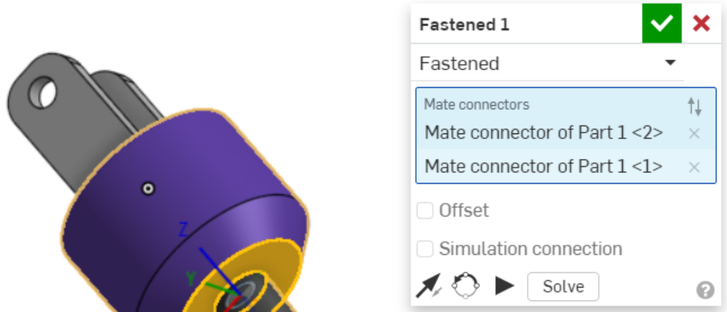
este recurso permite agrupar peças do jeito em que estão

Fastened mates



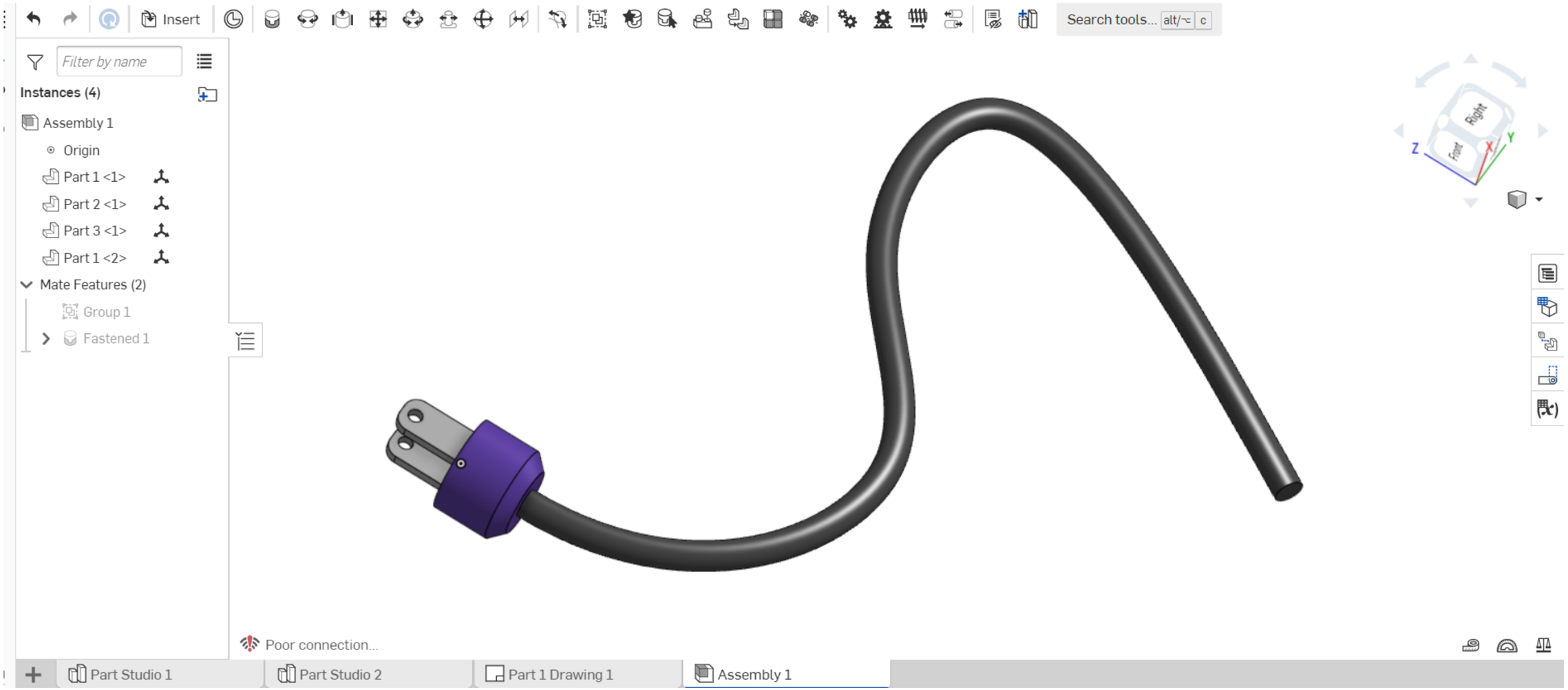






Permite unir duas faces através de mate connectors.

Ao final...


Insert
Search tools... alt/⌥ c
Filter by name
Instances (4)
Assembly 1
Origin
Part 1 <1>
Part 2 <1>
Part 3 <1>
Part 1 <2>
Mate Features (2)
Group 1
Fastened 1
Right
Front
Z
X
Y
Poor connection...
Part Studio 1
Part Studio 2
Part 1 Drawing 1
Assembly 1

Fim

Ainda há muito mais para aprender,
mas por hoje terminamos!