PROJECT TWO: MILESTONE 3 – COVER PAGE

Team Number: Mon-04

Please list full names and MacID's of all *present* Team Members

Full Name:	MacID:
Josh blanchard	blancj4
Nicholas Fabugais-Inaba	fabugain
Longpan Zhou	zhoul83
Mark benn	Bennm1

MILESTONE 3 (STAGE 1) – PRELIMINARY SOLID MODEL (MODELLING SUB-TEAM)

Team Number: Mon-04

You should have already completed this task individually prior to Design Studio 9.

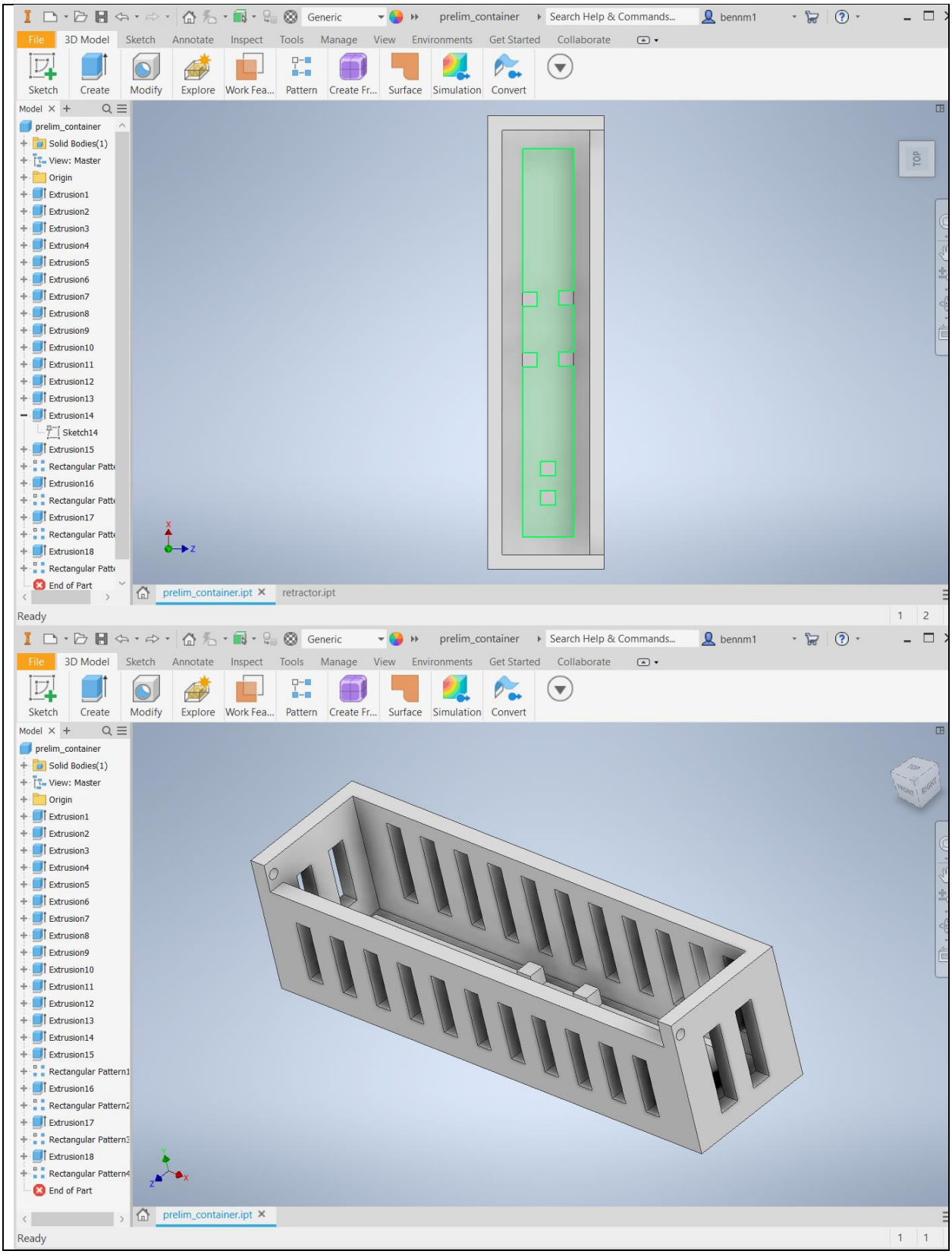
1. Copy-and-paste each team member's screenshots of their preliminary solid model on the following pages (1 team member per page)
   → Be sure to clearly indicate who each model belongs to

We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their solid model screenshots with the **Milestone Three Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone Three Team Worksheets** document allows you to readily access your team member's work
  - This will be especially helpful when completing ***Stage 3*** of the milestone

Team Number: Mon-04

Name:Mark Benn	MacID bennm1
Insert screenshot(s) of your model below	


prelim_container
Search Help & Commands...
bennm1
File
3D Model
Sketch
Annotate
Inspect
Tools
Manage
View
Environments
Get Started
Collaborate
Sketch
Create
Modify
Explore
Work Fea...
Pattern
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Surface
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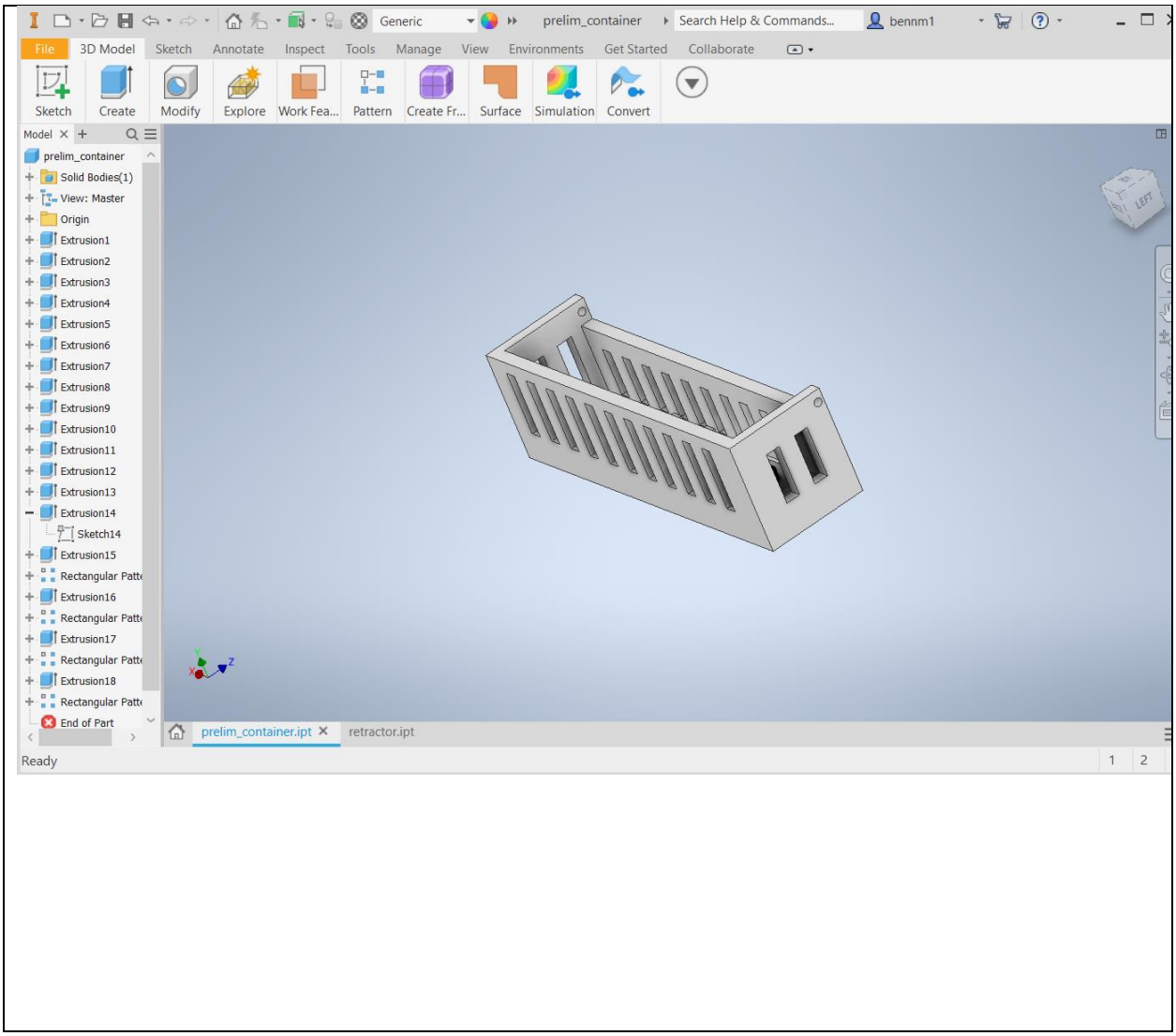
Convert
Model
prelim_container
Solid Bodies(1)
View: Master
Origin
Extrusion1
Extrusion2
Extrusion3
Extrusion4
Extrusion5
Extrusion6
Extrusion7
Extrusion8
Extrusion9
Extrusion10
Extrusion11
Extrusion12
Extrusion13
Extrusion14
Sketch14
Extrusion15
Extrusion16
Extrusion17
Extrusion18
End of Part
TOP
prelim_container.ipt
retractor.ipt
Ready
1
2
Rectangular Pattern1
Rectangular Pattern2
Rectangular Pattern3
Rectangular Pattern4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bennm1
File
3D Model
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Tools
Manage
View
Environments
Get Started
Collaborate
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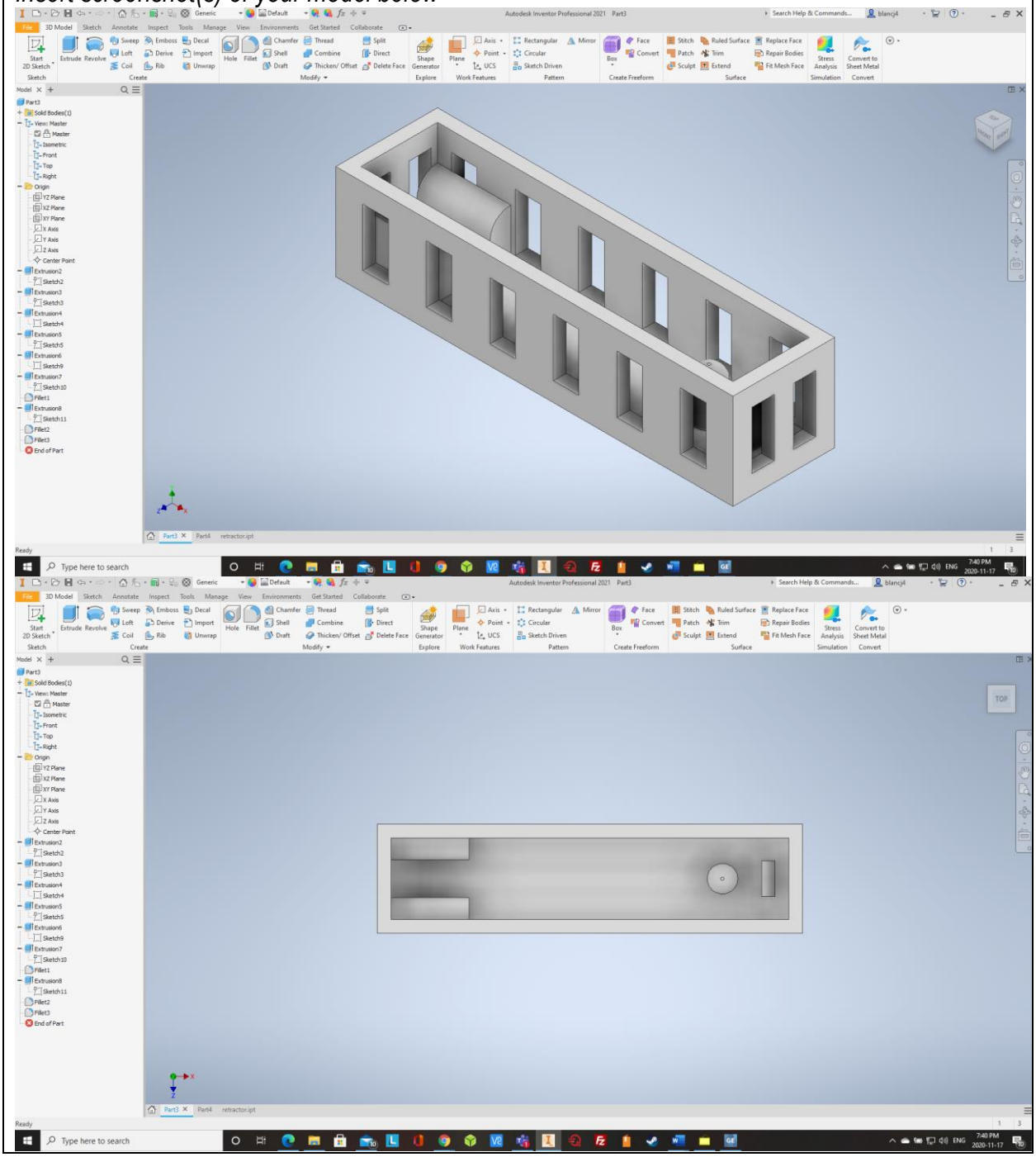
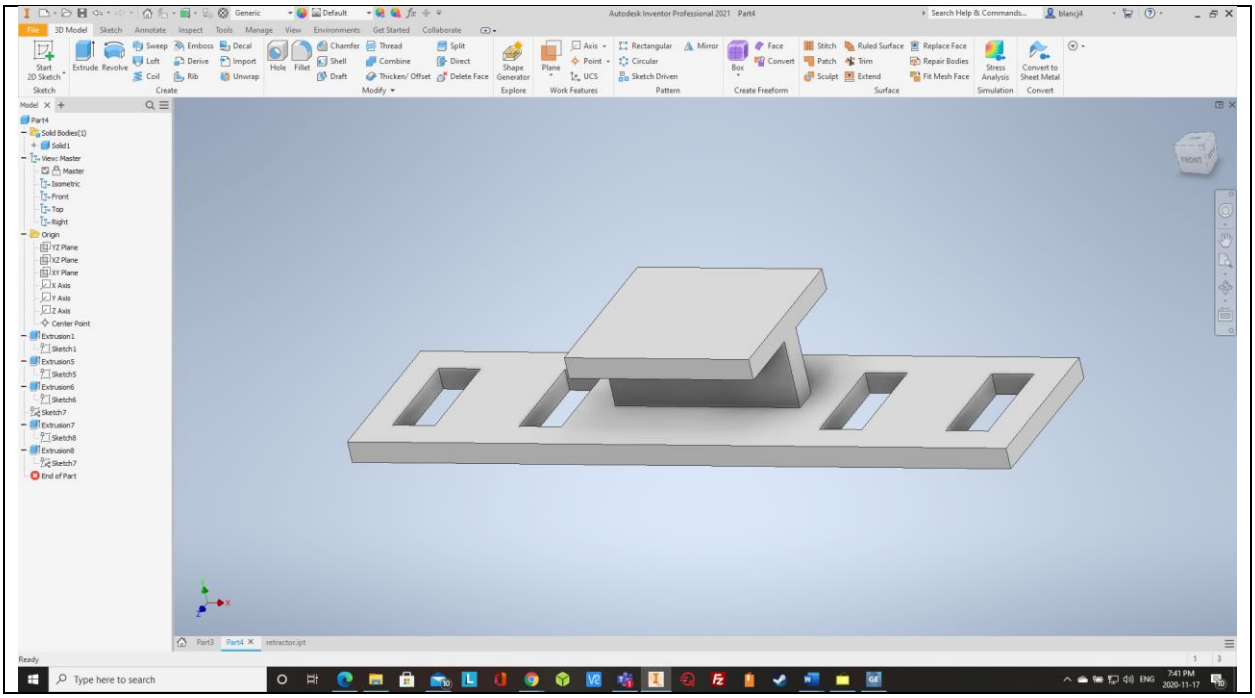
Extrusion15
Rectangular Patte
Extrusion16
Rectangular Patte
Extrusion17
Rectangular Patte
Extrusion18
Rectangular Patte
End of Part
LEFT
prelim_container.ipt
retractor.ipt
Ready
1
2

Team Number: Mon-04

Name: Josh Blanchard	MacID blancj4

Insert screenshot(s) of your model below





*If you are in a sub-team of 3, please copy and paste the above on a new page

MILESTONE 3 (STAGE 2) – PRELIMINARY PROGRAM TASKS (COMPUTATION SUB-TEAM)

Team Number: Mon-04

You should have already completed this task individually prior to Design Studio 9.

1. Copy-and-paste each team member's code screenshots on the following pages (1 team member per page)
   → Be sure to clearly indicate who each code belongs to

We are asking that you submit your work on both worksheets. It does seem redundant, but there are valid reasons for this:

- Each team member needs to submit their code screenshots with the **Milestone Three Individual Worksheets** document so that it can be ***graded***
- Compiling your individual work into this **Milestone Three Team Worksheets** document allows you to readily access your team member's work
  - This will be especially helpful when completing ***Stage 4*** of the milestone

Team Number: Mon-04

Name: Nicholas Fabugais-Inaba	MacID: fabugain

Insert a screenshot of your code below

```
#Nicholas Fabugais-Inaba
#fabugain
def move_endeffector(location):
    th = 0.5
    while True:
        if arm.emg_right() > th:  #drop off location
            arm.move_arm(location[0],location[1],location[2])
            break
```

Team Number: Mon-04

Name: Longpan Zhou	MacID: zhoul83

```
#Longpan Zhou
#zhoul83
def bin_location(id):
    if id == "1": #Red small
        return [-0.624, 0.2592, 0.391]
    elif id == "2": #Green small
        return[0.0, -0.6773, 0.391]
    elif id == "3": #blue small
        return [0.0, 0.6773, 0.391]
    elif id == "4": #Red Large
        return [-0.4519, 0.1872, 0.2093]
    elif id == "5": #Green Large
        return [0.0, -0.4891, 0.2093]
    elif id == "6": #Blue Large
        return [0.0, 0.4891, 0.2093]
    else
        arm.home()
```

*If you are in a sub-team of 3, please copy and paste the above on a new page

MILESTONE 3 (STAGE 3) – PUGH MATRIX (MODELLING SUB-TEAM)

Team Number: Mon-04

1. As a team, evaluate your designs for the sterilization container in the table below
   → List your Criteria in the first column
      - You should include a minimum of 5 criteria
   → Fill out the table below, comparing your designs against the given baseline
      - Replace "Design A" and "Design B" with more descriptive labels (e.g., a distinguishing feature or the name of the student author)
      - Assign the datum as the baseline for comparison
      - Indicate a "+" if a concept is better than the baseline, a "–" if a concept is worse, or a "S" if a concept is the same

	Datum	**Design A (josh)**	**Design B(mark)**
Secures tool	S	-	+
Allows tool to be sterilized	S	-	-
Lid closes securely	S	-	-
Fits in footprint	S	+	-
Able to be grabbed by gripper	S	+	+
Simplicity/ 3-D printing time restraint	S	+	+
Min 4mm each dimension	S	+	-
Total +		+4	+3
Total –		-3	-4
Total Score	0	+1	-1

*For a team of 3, click the top-right corner of the table to "Add a New Column"

2. Propose one or more suggested design refinements moving forward

- Change how the design secures the part in the y plane by incorporating the lid into securing the part. (extends down from lid to press on tool)
- Make walls, base, lid more porous (grid of squares like datum, while still maintaining 4mm min)
- Add some form of male-female design to secure lid

MILESTONE 3 (STAGE 4A) – CODE PEER-REVIEW (COMPUTATION SUB-TEAM)

Team Number: Mon-04

Document any errors and/or observations for each team member's preliminary Python program in the space below

Identify Autoclave Bin Location Task	**Team Member Name**: Longpan Zhou
Enter code errors and/or observations here -No code errors -function returns correct location for small containers -function returns correct location for large containers -function returns correct location for selected colour	
Move End-Effector Task	**Team Member Name**: Nicholas Fabugais-Inaba
-No code error, works exactly as expected -threshold is set equal to 0.5 -When right arm is bigger than the Q-arm goes to XYZ location -loop breaks when right arm is bigger than threshold	

MILESTONE 3 (STAGE 4B) – PROGRAM TASK PSEUDOCODE (COMPUTATION SUB-TEAM)

Team Number: Mon-04

As a team, write out the pseudocode for each of the *remaining* tasks in your computer program in the space below.

Control Gripper

```
Note: th will be a global variable in a complete program
Define control_gripper function:
    Set variable th equals to 0.5
    While True:
        If left arm < th:
            Control gripper to open
        Else if left arm > th:
            Control gripper to close
```

Open Autoclave Bin Drawer

```
Define autoclave_drawer function:
    Set variable th to 0.5
    Set variables red_drawer, green_drawer, blue_drawer all to False
        If right arm > th then
            If colour is red and size is large:
                Open red autoclave drawer
                red_drawer to True
            Else If colour is green:
                Open green autoclave drawer
                green_drawer to True
            else colour is blue:
                Open blue autoclave drawer
                blue_drawer to True
        if right arm < th then
            if red_drawer equals True
                close red autoclave drawer
                red_drawer to False
            else if blue_drawer equals True
                close green autoclave drawer
                green_drawer to False
            else if green_drawer equals True
                close blue autoclave drawer
                blue_drawer euqals False
```

Continue or Terminate

```
Define continue_terminate function:
    For I in range of 6:
        Call main function
    System exit
```