COMPANY: Miles In 3D
DEPARTMENT: Additive Manufacturing
PHONE #: 1(800)3DP-RINT

AM STATUS REPORT

PROJECT SUMMARY

REPORT DATE	PROJECT NAME	PREPARED BY
January 1st, 2020	Controller Arm	Miles Craig

STATUS SUMMARY

The project is progressing nicely. 1 part has been successfully printed. 2 parts are currently printing. 1 machine is being fixed.

PART OVERVIEW

PART	MATERIAL	PRINTER	DUE DATE	STATUS	NOTES
bracket_01	SS	ProX DMP 320	Jan 25th	Printed and Finished	Ready to Ship
bracket_02	SS	ProX DMP 320	Jan 30th	Printing	Needs to be finished
bracket_03	Ti	ProX DMP 350	Jan 30th	Printing	Needs to be finished

PRINTER OVERVIEW

PRINTER	TECHNOLOGY	MATERIAL	STATUS	NOTES
ProX DMP 320	PBF/DMLS	SS	Printing	Print Next Part
ProX DMP 350	PBF/DMLS	Ti	Printing	Material Change Over
FORTUS 450MC	FDM	ABS	Being Fixed	Print Calibration File

MATERIAL OVERVIEW

MATERIAL	VOLUME FOR QUEUE (LBS)	VOLUME SUPPLY (LBS)	NOTES
Stainless Steel	50	75	Consider Another Order
Titanium	15	15	EMERGENCY ORDER
ABS	5	50	N/A

CONCLUSION

Order Titanium! Follow up with the technician about the 450 printer.

COMPANY: {{ company }}
DEPARTMENT: {{ department }}
PHONE #: {{ phone }}

AM STATUS REPORT

PROJECT SUMMARY

REPORT DATE	PROJECT NAME	PREPARED BY
{{ date }}	{{ project_name }}	{{ prepared_by }}

STATUS SUMMARY

{{ status_summary }}

PART OVERVIEW

PART	MATERIAL	PRINTER	DUE DATE	STATUS	NOTES
{%tr for item in part_table %}					
{{ item.part }}	{{ item.material }}	{{ item.printer}}	{{ item.due_date }}	{{ item.status }}	{{ item.notes }}
{%tr endfor %}					

PRINTER OVERVIEW

PRINTER	TECHNOLOGY	MATERIAL	STATUS	NOTES
{%tr for item in printer_table %}				
{{ item.printer }}	{{ item.technology }}	{{ item.material}}	{{ item.status }}	{{ item.notes }}
{%tr endfor %}				

MATERIAL OVERVIEW

MATERIAL	VOLUME FOR QUEUE (LBS)	VOLUME SUPPLY (LBS)	NOTES
{%tr for item in material_table %}			
{{ item.material }}	{{ item.volume_queue }}	{{ item.volume_supply }}	{{ item.notes }}
{%tr endfor %}			

CONCLUSION

{{ conclusion }}

Additive Manufacturing Report Generator

In [1]:
```
# import libraries
import pandas as pd
from docxtpl import DocxTemplate
```

In [2]:
```
# load template
doc = DocxTemplate('template.docx')
```

Create Content

In [3]:
```
# create blank  dictionary
content = {}
```

In [4]:
```
# title block
content['company'] = 'Miles In 3D'
content['department'] = 'Additive Manufacturing'
content['phone'] = '1(800)3DP-RINT'
```

In [5]:
```
# project summary table
content['date'] = 'January 1st, 2020'
content['project_name'] = 'Controller Arm'
content['prepared_by'] = 'Miles Craig'
```

In [6]:
```
# status summary

content['status_summary'] = 'The project is progressing nicely. ' + \
                            '1 part has been successfully printed. ' + \
                            '2 parts are currently printing. ' + \
                            '1 machine is being fixed.'
```

In [7]:
```
# part overview

part_cols = ['part','material','printer','due_date','status','notes']
part_data = [['bracket_01','SS','ProX DMP 320','Jan 25th','Printed and Finishe
d','Ready to Ship'],
             ['bracket_02','SS','ProX DMP 320','Jan 30th','Printing','Needs to
be finished'],
             ['bracket_03','Ti','ProX DMP 350','Jan 30th','Printing','Needs to
be finished']]
part_df = pd.DataFrame(part_data, columns=part_cols)
content['part_table'] = part_df.T.to_dict().values()
part_df
```

Out[7]:

	part	material	printer	due_date	status	notes
0	bracket_01	SS	ProX DMP 320	Jan 25th	Printed and Finished	Ready to Ship
1	bracket_02	SS	ProX DMP 320	Jan 30th	Printing	Needs to be finished
2	bracket_03	Ti	ProX DMP 350	Jan 30th	Printing	Needs to be finished

In [8]:
```
# printer overview

printer_cols = ['printer','technology','material','status','notes']
printer_data = [['ProX DMP 320','PBF/DMLS','SS','Printing','Print Next Part'],
                ['ProX DMP 350','PBF/DMLS','Ti','Printing','Material Change Ov
er'],
                ['FORTUS 450MC','FDM','ABS','Being Fixed','Print Calibration F
ile']]
printer_df = pd.DataFrame(printer_data, columns=printer_cols)

# convert df into a list of dictionaries
content['printer_table'] = printer_df.T.to_dict().values()

printer_df
```

Out[8]:

	printer	technology	material	status	notes
0	ProX DMP 320	PBF/DMLS	SS	Printing	Print Next Part
1	ProX DMP 350	PBF/DMLS	Ti	Printing	Material Change Over
2	FORTUS 450MC	FDM	ABS	Being Fixed	Print Calibration File

In [9]:
```
# material overview

material_cols = ['material','volume_queue','volume_supply','notes']
material_data = [['Stainless Steel','50','75','Consider Another Order'],
                 ['Titanium','15','15','EMERGENCY ORDER'],
                 ['ABS','5','50','N/A']]
material_df = pd.DataFrame(material_data, columns=material_cols)
content['material_table'] = material_df.T.to_dict().values()
material_df
```

Out[9]:

	material	volume_queue	volume_supply	notes
0	Stainless Steel	50	75	Consider Another Order
1	Titanium	15	15	EMERGENCY ORDER
2	ABS	5	50	N/A

In [10]:
```
# conclusion
content['conclusion'] = 'Order Titanium! ' + \
                        'Follow up with the technician about the 450 printer.'
```

In [11]:
```
# print out content dictionary
for k,v in content.items():
    print(k)
    print(v)
    print()
```

```
company
Miles In 3D

department
Additive Manufacturing

phone
1(800)3DP-RINT

date
January 1st, 2020

project_name
Controller Arm

prepared_by
Miles Craig

status_summary
The project is progressing nicely. 1 part has been successfully printed. 2 pa
rts are currently printing. 1 machine is being fixed.

part_table
dict_values([{'part': 'bracket_01', 'material': 'SS', 'printer': 'ProX DMP 32
0', 'due_date': 'Jan 25th', 'status': 'Printed and Finished', 'notes': 'Ready
to Ship'}, {'part': 'bracket_02', 'material': 'SS', 'printer': 'ProX DMP 32
0', 'due_date': 'Jan 30th', 'status': 'Printing', 'notes': 'Needs to be finis
hed'}, {'part': 'bracket_03', 'material': 'Ti', 'printer': 'ProX DMP 350', 'd
ue_date': 'Jan 30th', 'status': 'Printing', 'notes': 'Needs to be finishe
d'}])

printer_table
dict_values([{'printer': 'ProX DMP 320', 'technology': 'PBF/DMLS', 'materia
l': 'SS', 'status': 'Printing', 'notes': 'Print Next Part'}, {'printer': 'Pro
X DMP 350', 'technology': 'PBF/DMLS', 'material': 'Ti', 'status': 'Printing',
'notes': 'Material Change Over'}, {'printer': 'FORTUS 450MC', 'technology':
'FDM', 'material': 'ABS', 'status': 'Being Fixed', 'notes': 'Print Calibratio
n File'}])

material_table
dict_values([{'material': 'Stainless Steel', 'volume_queue': '50', 'volume_su
pply': '75', 'notes': 'Consider Another Order'}, {'material': 'Titanium', 'vo
lume_queue': '15', 'volume_supply': '15', 'notes': 'EMERGENCY ORDER'}, {'mate
rial': 'ABS', 'volume_queue': '5', 'volume_supply': '50', 'notes': 'N/A'}])

conclusion
Order Titanium! Follow up with the technician about the 450 printer.
```

Render and Save the Report

In [12]:
```
# render the documnet
doc.render(content)
```

In [13]:
```
# save the document
doc.save('report.docx')
```