

Lab 4 – Job Automation

Mid-level

- Write a python script to print hello world.
- Convert the script into executable (use pyinstaller or py2exe – any of your choice).
- Schedule a task named “Python execution” to run the above executable on the first Monday of every month.

Microsoft Windows [Version 10.0.19042.804]

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```
C:\Users\SATYAM\Videos\SC_lab>pyinstaller HelloWorld.py
```

```
223 INFO: PyInstaller: 4.2
```

```
223 INFO: Python: 3.8.2
```

```
224 INFO: Platform: Windows-10-10.0.19041-SP0
```

```
225 INFO: wrote C:\Users\SATYAM\Videos\SC_lab\HelloWorld.spec
```

```
231 INFO: UPX is not available.
```

```
235 INFO: Extending PYTHONPATH with paths
```

```
['C:\\Users\\SATYAM\\Videos\\SC_lab', 'C:\\Users\\SATYAM\\Videos\\SC_lab']
```

```
255 INFO: checking Analysis
```

```
255 INFO: Building Analysis because Analysis-00.toc is non existent
```

```
256 INFO: Initializing module dependency graph...
```

```
260 INFO: Caching module graph hooks...
```

```
274 WARNING: Several hooks defined for module 'win32ctypes.core'. Please take care they do not conflict.
```

```
293 INFO: Analyzing base_library.zip ...
```

```
4611 INFO: Processing pre-find module path hook distutils from
```

```
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks\\pre_find_module_path\\hook-distutils.py'.
```

4613 INFO: distutils: retargeting to non-venv dir
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib'

8974 INFO: Caching module dependency graph...

9403 INFO: running Analysis Analysis-00.toc

9424 INFO: Adding Microsoft.Windows.Common-Controls to dependent assemblies of final executable
required by c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\python.exe

10245 INFO: Analyzing C:\\Users\\SATYAM\\Videos\\SC_lab\\HelloWorld.py

10251 INFO: Processing module hooks...

10252 INFO: Loading module hook 'hook-difflib.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10257 INFO: Excluding import of doctest from module difflib

10257 INFO: Loading module hook 'hook-distutils.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10263 INFO: Loading module hook 'hook-distutils.util.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10268 INFO: Excluding import of lib2to3.refactor from module distutils.util

10268 INFO: Loading module hook 'hook-encodings.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10424 INFO: Loading module hook 'hook-heapq.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10427 INFO: Excluding import of doctest from module heapq

10428 INFO: Loading module hook 'hook-lib2to3.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10558 INFO: Loading module hook 'hook-multiprocessing.util.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10562 INFO: Excluding import of test.support from module multiprocessing.util

10562 INFO: Excluding import of test from module multiprocessing.util

10563 INFO: Loading module hook 'hook-pickle.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10566 INFO: Excluding import of argparse from module pickle

10567 INFO: Loading module hook 'hook-sysconfig.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10569 INFO: Loading module hook 'hook-xml.etree.cElementTree.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10571 INFO: Loading module hook 'hook-xml.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10649 INFO: Loading module hook 'hook-_tkinter.py' from
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks'...

10939 INFO: checking Tree

10939 INFO: Building Tree because Tree-00.toc is non existent

10940 INFO: Building Tree Tree-00.toc

11235 INFO: checking Tree

11236 INFO: Building Tree because Tree-01.toc is non existent

11237 INFO: Building Tree Tree-01.toc

11416 INFO: checking Tree

11416 INFO: Building Tree because Tree-02.toc is non existent

11418 INFO: Building Tree Tree-02.toc

11466 INFO: Looking for ctypes DLLs

11520 INFO: Analyzing run-time hooks ...

11525 INFO: Including run-time hook
'c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\hooks\\rthooks\\pyi_rth_multiprocessing.py'

11542 INFO: Looking for dynamic libraries

12382 INFO: Looking for eggs

12382 INFO: Using Python library c:\users\satyam\appdata\local\programs\python\python38-32\python38.dll

12384 INFO: Found binding redirects:

[]

12391 INFO: Warnings written to C:\Users\SATYAM\Videos\SC_lab\build\HelloWorld\warn-HelloWorld.txt

12494 INFO: Graph cross-reference written to C:\Users\SATYAM\Videos\SC_lab\build\HelloWorld\xref-HelloWorld.html

12536 INFO: checking PYZ

12536 INFO: Building PYZ because PYZ-00.toc is non existent

12538 INFO: Building PYZ (ZlibArchive) C:\Users\SATYAM\Videos\SC_lab\build\HelloWorld\PYZ-00.pyz

13574 INFO: Building PYZ (ZlibArchive) C:\Users\SATYAM\Videos\SC_lab\build\HelloWorld\PYZ-00.pyz completed successfully.

13593 INFO: checking PKG

13594 INFO: Building PKG because PKG-00.toc is non existent

13595 INFO: Building PKG (CArchive) PKG-00.pkg

13632 INFO: Building PKG (CArchive) PKG-00.pkg completed successfully.

13635 INFO: Bootloader c:\users\satyam\appdata\local\programs\python\python38-32\lib\site-packages\PyInstaller\bootloader\Windows-32bit\run.exe

13636 INFO: checking EXE

13637 INFO: Building EXE because EXE-00.toc is non existent

13638 INFO: Building EXE from EXE-00.toc

13641 INFO: Copying icons from ['c:\\users\\satyam\\appdata\\local\\programs\\python\\python38-32\\lib\\site-packages\\PyInstaller\\bootloader\\images\\icon-console.ico']

13645 INFO: Writing RT_GROUP_ICON 0 resource with 104 bytes

13645 INFO: Writing RT_ICON 1 resource with 3752 bytes

13646 INFO: Writing RT_ICON 2 resource with 2216 bytes

13648 INFO: Writing RT_ICON 3 resource with 1384 bytes

13650 INFO: Writing RT_ICON 4 resource with 37019 bytes

13651 INFO: Writing RT_ICON 5 resource with 9640 bytes

13653 INFO: Writing RT_ICON 6 resource with 4264 bytes

13654 INFO: Writing RT_ICON 7 resource with 1128 bytes

13664 INFO: Appending archive to EXE

C:\Users\SATYAM\Videos\SC_lab\build\HelloWorld\HelloWorld.exe

13779 INFO: Building EXE from EXE-00.toc completed successfully.

13784 INFO: checking COLLECT

13784 INFO: Building COLLECT because COLLECT-00.toc is non existent

13786 INFO: Building COLLECT COLLECT-00.toc

14100 INFO: Building COLLECT COLLECT-00.toc completed successfully.

C:\Users\SATYAM\Videos\SC_lab>

C:\Users\SATYAM\Videos\SC_lab>schtasks /create /tn "18BCN7106_task_pyinstaller" /sc MONTHLY /mo
FIRST /d MON /tr "C:\Users\SATYAM\Videos\SC_lab\ExE\dist\HelloWorld\HelloWorld.exe" /st 14:00

SUCCESS: The scheduled task "18BCN7106_task_pyinstaller" has successfully been created.

C:\Users\SATYAM\Videos\SC_lab>schtasks

Folder: \

TaskName	Next Run Time	Status
=====		
18BCN7106_task_pyinstaller	17-Feb-21 5:23:00 PM	Ready
Bitdefender AgentTask_AD394AE64E874073B1	N/A	Ready
Microsoft Office 15 Sync Maintenance for	N/A	Ready

^C

C:\Users\SATYAM\Videos\SC_lab>

Intermediate

- Schedule a task named "Executer" on your machine to run calculator for every five minutes starting from the specified start time with no end
- Schedule a task named "Executer2" to run notepad starting at 5:00PM and automatically terminating at 5:40PM hours every day

Microsoft Windows [Version 10.0.19042.804]

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```
C:\Users\SATYAM>schtasks /create /tn "Executer" /sc minute /mo 5 /tr
"C:\Windows\System32\calc.exe"
```

SUCCESS: The scheduled task "Executer" has successfully been created.

```
C:\Users\SATYAM>schtasks
```

Folder: \

TaskName	Next Run Time	Status
=====		
Bitdefender AgentTask_AD394AE64E874073B1	N/A	Ready
Executer	17-Feb-21 5:53:00 PM	Ready
Microsoft Office 15 Sync Maintenance for	N/A	Ready

^C

```
C:\Users\SATYAM>
```

```
C:\Users\SATYAM>schtasks /create /tn "Executer2" /sc DAILY /st 17:00 /et 17:40 /tr
"C:\Windows\System32\notepad.exe"
```

SUCCESS: The scheduled task "Executer2" has successfully been created.

C:\Users\SATYAM>schtasks

Folder: \

TaskName	Next Run Time	Status
=====		
Bitdefender AgentTask_AD394AE64E874073B1	N/A	Ready
Executer	17-Feb-21 5:53:00 PM	Ready
Executer2	N/A	Ready
Microsoft Office 15 Sync Maintenance for	N/A	Ready
NvBatteryBoostCheckOnLogon_{B2FE1952-018	N/A	Ready

^C

Advanced

- Schedule a task to defragment any of your local disk daily at 10AM

```
C:\WINDOWS\system32>schtasks /create /tn "Defrag_Executer" /sc DAILY /st 10:00 /tr  
"C:\Windows\System32\Defrag C: /U /V"
```

Invoking defragmentation on (C:)...

Analysis: 100% complete.

Pre-Optimization Report:

Volume Information:

Volume size = 117.60 GB

Cluster size	= 4 KB
Used space	= 74.11 GB
Free space	= 43.49 GB

Fragmentation:

Total fragmented space	= 11%
Average fragments per file	= 1.11

Movable files and folders	= 307551
Unmovable files and folders	= 8

Files:

Fragmented files	= 11465
Total file fragments	= 33983

Folders:

Total folders	= 15492
Fragmented folders	= 325
Total folder fragments	= 1360

Free space:

Free space count	= 47535
Average free space size	= 1.08 MB
Largest free space size	= 32.85 GB

Master File Table (MFT):

MFT size	= 597.50 MB
MFT record count	= 611839
MFT usage	= 100%

Total MFT fragments = 8

Note: File fragments larger than 64MB are not included in the fragmentation statistics.

Performing pass 1:

Defragmentation: 100% complete.

Free Space Consolidation: 100% complete.

Performing pass 2:

Defragmentation: 100% complete.

Free Space Consolidation: 100% complete.

Performing pass 3:

Defragmentation: 100% complete.

Free Space Consolidation: 100% complete.

Performing pass 4:

Defragmentation: 100% complete.

Free Space Consolidation: 100% complete.

Performing pass 5:

Free Space Consolidation: 100% complete.

Performing pass 1:

Retrim: 100% complete.

The operation completed successfully.

Post Defragmentation Report:

Volume Information:

Volume size	= 117.60 GB
Cluster size	= 4 KB
Used space	= 74.11 GB
Free space	= 43.49 GB

Fragmentation:

Total fragmented space	= 0%
Average fragments per file	= 1.00

Movable files and folders	= 307544
Unmovable files and folders	= 8

Files:

Fragmented files	= 2
Total file fragments	= 3

Folders:

Total folders	= 15492
Fragmented folders	= 0
Total folder fragments	= 0

Free space:

Free space count	= 3585
Average free space size	= 28.81 MB
Largest free space size	= 32.89 GB

Master File Table (MFT):

MFT size = 597.50 MB
MFT record count = 611839
MFT usage = 100%
Total MFT fragments = 8

Note: File fragments larger than 64MB are not included in the fragmentation statistics.

Attrib command

C:\Users\SATYAM>attrib /?

Displays or changes file attributes.

ATTRIB [+R | -R] [+A | -A] [+S | -S] [+H | -H] [+O | -O] [+I | -I] [+X | -X] [+P | -P] [+U | -U]
[drive:][path][filename] [/S [/D]] [/L]

- + Sets an attribute.
- Clears an attribute.
- R Read-only file attribute.
- A Archive file attribute.
- S System file attribute.
- H Hidden file attribute.
- O Offline attribute.
- I Not content indexed file attribute.
- X No scrub file attribute.
- V Integrity attribute.
- P Pinned attribute.
- U Unpinned attribute.

B SMR Blob attribute.

[drive:][path][filename]

Specifies a file or files for attrib to process.

/S Processes matching files in the current folder
and all subfolders.

/D Processes folders as well.

/L Work on the attributes of the Symbolic Link versus
the target of the Symbolic Link

```
C:\Users\SATYAM>cd Videos\SC_lab
```

```
C:\Users\SATYAM\Videos\SC_lab>dir
```

Volume in drive C has no label.

Volume Serial Number is 1E41-2E14

Directory of C:\Users\SATYAM\Videos\SC_lab

```
23-Feb-21 06:03 PM <DIR>      .
23-Feb-21 06:03 PM <DIR>      ..
10-Feb-21 05:35 PM <DIR>      18SS_2
23-Feb-21 06:24 PM          43 defrag.py
17-Feb-21 08:30 PM <DIR>      ExE
10-Feb-21 05:02 PM          113 File1.py
                2 File(s)      156 bytes
                4 Dir(s) 46,701,588,480 bytes free
```

```
C:\Users\SATYAM\Videos\SC_lab>attrib +h +r +s /s /d ExE
```

```
C:\Users\SATYAM\Videos\SC_lab>dir
```

Volume in drive C has no label.

Volume Serial Number is 1E41-2E14

Directory of C:\Users\SATYAM\Videos\SC_lab

```
23-Feb-21 06:03 PM <DIR>      .
23-Feb-21 06:03 PM <DIR>      ..
10-Feb-21 05:35 PM <DIR>      18SS_2
23-Feb-21 06:24 PM          43 defrag.py
10-Feb-21 05:02 PM          113 File1.py
           2 File(s)        156 bytes
           3 Dir(s) 46,700,556,288 bytes free
```

```
C:\Users\SATYAM\Videos\SC_lab>attrib -h -r -s /s /d ExE
```

```
C:\Users\SATYAM\Videos\SC_lab>dir
```

Volume in drive C has no label.

Volume Serial Number is 1E41-2E14

Directory of C:\Users\SATYAM\Videos\SC_lab

```
23-Feb-21 06:03 PM <DIR>      .
23-Feb-21 06:03 PM <DIR>      ..
10-Feb-21 05:35 PM <DIR>      18SS_2
23-Feb-21 06:24 PM          43 defrag.py
17-Feb-21 08:30 PM <DIR>      ExE
10-Feb-21 05:02 PM          113 File1.py
           2 File(s)        156 bytes
```

4 Dir(s) 46,700,408,832 bytes free

C:\Users\SATYAM\Videos\SC_lab>

Powercfg

- Powercfg is a very powerful command for managing and tracking how your computer uses energy.
- >powercfg /energy
- > Powercfg /lastwake
- >powercfg /hibernate on
- > powercfg /hibernate off
- > powercfg /a
- powercfg /devicequery s1_supported

C:\WINDOWS\system32>powercfg /?

POWERCFG /COMMAND [ARGUMENTS]

Description:

Enables users to control power settings on a local system.

For detailed command and option information, run "POWERCFG /? <COMMAND>"

Command List:

/LIST, /L Lists all power schemes.

/QUERY, /Q Displays the contents of a power scheme.

/CHANGE, /X Modifies a setting value in the current power scheme.

/CHANGENAME Modifies the name and description of a power scheme.

/DUPLICATESCHEME Duplicates a power scheme.

/DELETE, /D Deletes a power scheme.

/DELETESSETTING Deletes a power setting.

/SETACTIVE, /S Makes a power scheme active on the system.

/GETACTIVESCHEME Retrieves the currently active power scheme.

/SETACVALUEINDEX Sets the value associated with a power setting
while the system is powered by AC power.

/SETDCVALUEINDEX Sets the value associated with a power setting
while the system is powered by DC power.

/IMPORT Imports all power settings from a file.

/EXPORT Exports a power scheme to a file.

/ALIASES Displays all aliases and their corresponding GUIDs.

/GETSECURITYDESCRIPTOR

Gets a security descriptor associated with a specified
power setting, power scheme, or action.

`/SETSECURITYDESCRIPTOR`

Sets a security descriptor associated with a power setting, power scheme, or action.

`/HIBERNATE, /H` Enables and disables the hibernate feature.

`/AVAILABLESLEEPSTATES, /A`

Reports the sleep states available on the system.

`/DEVICEQUERY` Returns a list of devices that meet specified criteria.

`/DEVICEENABLEWAKE` Enables a device to wake the system from a sleep state.

`/DEVICEDISABLEWAKE` Disables a device from waking the system from a sleep state.

`/LASTWAKE` Reports information about what woke the system from the last sleep transition.

`/WAKETIMERS` Enumerates active wake timers.

`/REQUESTS` Enumerates application and driver Power Requests.

`/REQUESTSOVERRIDE` Sets a Power Request override for a particular Process, Service, or Driver.

`/ENERGY` Analyzes the system for common energy-efficiency and battery life problems.

/BATTERYREPORT Generates a report of battery usage.

/SLEEPSTUDY Generates a diagnostic system power transition report.

/SRUMUTIL Dumps Energy Estimation data from System Resource Usage Monitor (SRUM).

/SYSTEMSLEEPDIAGNOSTICS
Generates a diagnostic report of system sleep transitions.

/SYSTEMPOWERREPORT Generates a diagnostic system power transition report.

/POWERTHROTTLING Control power throttling for an application.

```
C:\WINDOWS\system32>powercfg /energy
```

```
Enabling tracing for 60 seconds...
```

```
Observing system behavior...
```

```
Analyzing trace data...
```

```
Analysis complete.
```

```
Energy efficiency problems were found.
```

```
6 Errors
```

```
14 Warnings
```

```
92 Informational
```

See C:\WINDOWS\system32\energy-report.html for more details.

```
C:\WINDOWS\system32>powercfg /lastwake
```

Wake History Count - 1

Wake History [0]

Wake Source Count - 0

```
C:\WINDOWS\system32>powercfg /a
```

The following sleep states are available on this system:

Standby (S3)

Hibernate

Hybrid Sleep

Fast Startup

The following sleep states are not available on this system:

Standby (S1)

The system firmware does not support this standby state.

Standby (S2)

The system firmware does not support this standby state.

Standby (S0 Low Power Idle)

The system firmware does not support this standby state.

```
C:\WINDOWS\system32>powercfg /devicequery s1_supported
```

HID Keyboard Device

Root Print Queue

HID-compliant mouse

Volume Manager

WAN Miniport (PPPOE)

Microsoft Wi-Fi Direct Virtual Adapter #2

Microsoft Wi-Fi Direct Virtual Adapter #4

Microsoft Basic Display Driver

Speakers (Realtek High Definition Audio)

VirtualBox Host-Only Ethernet Adapter

TAP-Windows Adapter V9

Fax

WAN Miniport (PPTP)

Microsoft Hyper-V Virtualization Infrastructure Driver

WAN Miniport (IKEv2)

Composite Bus Enumerator

Microsoft Virtual Drive Enumerator

Microsoft Storage Spaces Controller

Microsoft XPS Document Writer

HID-compliant vendor-defined device

OneNote for Windows 10

Microsoft Kernel Debug Network Adapter

Generic PnP Monitor

UMBus Root Bus Enumerator

Charge Arbitration Driver

ACPI x64-based PC

HID-compliant consumer control device

WAN Miniport (Network Monitor)

WAN Miniport (IP)

Microsoft Basic Render Driver

WAN Miniport (SSTP)

Intel(R) Graphics Command Center

Send To OneNote 2013
HID-compliant system controller (001)
Generic software component
NVIDIA Virtual Audio Device (Wave Extensible) (WDM)
NvModuleTracker Device
NVVHCI Enumerator
USB Input Device (004)
Intel(R) Wireless Bluetooth(R)
NDIS Virtual Network Adapter Enumerator
Microsoft Print to PDF
USB Root Hub (USB 3.0)
Intel(R) Graphics Control Panel
USB Composite Device (004)
Microsoft System Management BIOS Driver
Microphone Array (Realtek High Definition Audio)
Plug and Play Software Device Enumerator
Remote Desktop Device Redirector Bus
WAN Miniport (IPv6)
USB Input Device (005)
WAN Miniport (L2TP)

Write a script to perform the following jobs

- To lock your PC(Win + L)

```
import ctypes  
ctypes.windll.user32.LockWorkStation()
```

- To clear your recycle bin

```
import winshell  
winshell.recycle_bin().empty(confirm=False,show_progress=False,sound=False)
```