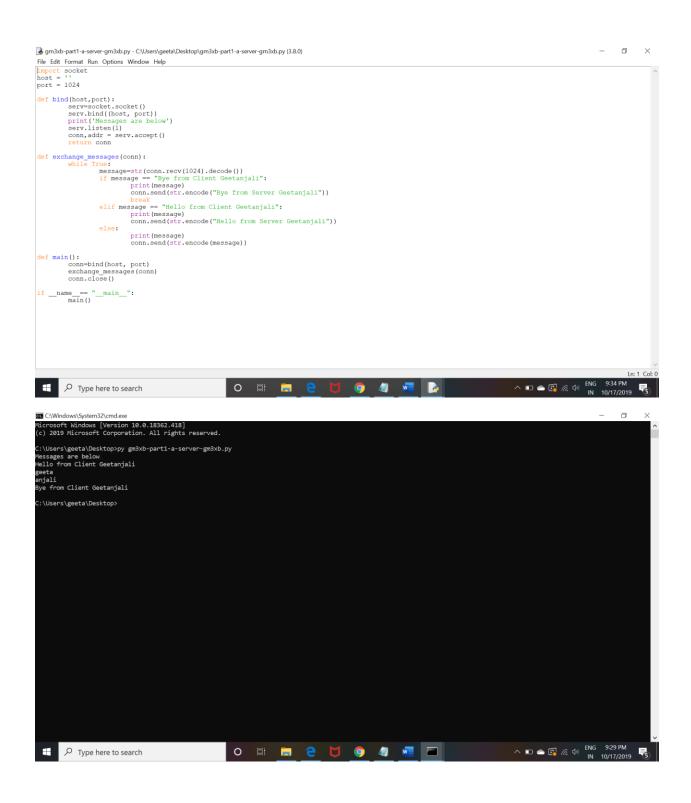# NETWORK ARCHITECTURE

Project#1(Part#1)

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Student ID: 16290659

A)

Server- localhost

```python
import socket
host = ''
port = 1024
def bind(host,port):
    serv=socket.socket()
    serv.bind((host, port))
    print('Messages are below')
    serv.listen(1)
    conn,addr = serv.accept()
    return conn
def exchange_messages(conn):
    while True:
        message=str(conn.recv(1024).decode())
        if message == "Bye from Client Geetanjali":
            print(message)
            conn.send(str.encode("Bye from Server Geetanjali"))
            break
        elif message == "Hello from Client Geetanjali":
            print(message)
            conn.send(str.encode("Hello from Server Geetanjali"))
        else:
            print(message)
            conn.send(str.encode(message))
def main():
    conn=bind(host, port)
    exchange_messages(conn)
    conn.close()
if __name__ == "__main__":
    main()
```
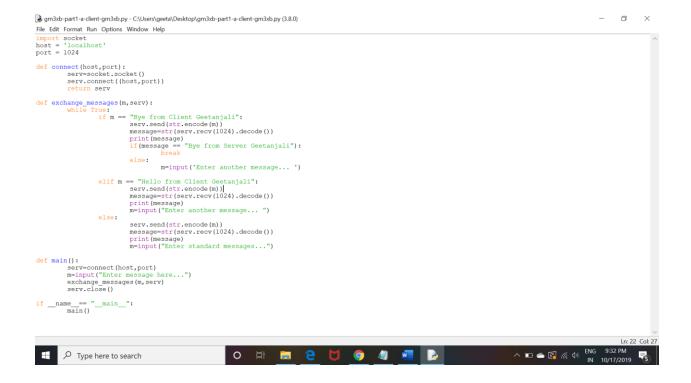
File Edit Format Run Options Window Help

```python
import socket
host = ''
port = 1024

def bind(host,port):
        serv=socket.socket()
        serv.bind((host, port))
        print('Messages are below')
        serv.listen(1)
        conn,addr = serv.accept()
        return conn

def exchange_messages(conn):
        while True:
                message=str(conn.recv(1024).decode())
                if message == "Bye from Client Geetanjali":
                        print(message)
                        conn.send(str.encode("Bye from Server Geetanjali"))
                        break
                elif message == "Hello from Client Geetanjali":
                        print(message)
                        conn.send(str.encode("Hello from Server Geetanjali"))
                else:
                        print(message)
                        conn.send(str.encode(message))

def main():
        conn=bind(host, port)
        exchange_messages(conn)
        conn.close()

if __name__ == "__main__":
        main()
```

Ln: 1 Col: 0

C:\Windows\System32\cmd.exe

```
Microsoft Windows [Version 10.0.18362.418]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\geeta\Desktop>py gm3xb-part1-a-server-gm3xb.py
Messages are below
Hello from Client Geetanjali
geeta
anjali
Bye from Client Geetanjali

C:\Users\geeta\Desktop>
```

Client- localhost

```python
import socket
host = 'localhost'
port = 1024
def connect(host,port):
serv=socket.socket()
serv.connect((host,port))
return serv
def exchange_messages(m,serv):
while True:
if m == "Bye from Client Geetanjali":
serv.send(str.encode(m))
message=str(serv.recv(1024).decode())
print(message)
if(message == "Bye from Server Geetanjali"):
break
else:
m=input('Enter another message... ')
elif m == "Hello from Client Geetanjali":
serv.send(str.encode(m))
message=str(serv.recv(1024).decode())
print(message)
m=input("Enter another message... ")
else:
serv.send(str.encode(m))
message=str(serv.recv(1024).decode())
print(message)
m=input("Enter standard messages...")

def main():
serv=connect(host,port)
m=input("Enter message here...")
exchange_messages(m,serv)
serv.close()
if __name__== "__main__":
main()
```

File Edit Format Run Options Window Help

```python
import socket
host = 'localhost'
port = 1024

def connect(host,port):
        serv=socket.socket()
        serv.connect((host,port))
        return serv

def exchange_messages(m,serv):
        while True:
                if m == "Bye from Client Geetanjali":
                        serv.send(str.encode(m))
                        message=str(serv.recv(1024).decode())
                        print(message)
                        if(message == "Bye from Server Geetanjali"):
                                break
                        else:
                                m=input('Enter another message... ')

                elif m == "Hello from Client Geetanjali":
                        serv.send(str.encode(m))
                        message=str(serv.recv(1024).decode())
                        print(message)
                        m=input("Enter another message... ")
                else:
                        serv.send(str.encode(m))
                        message=str(serv.recv(1024).decode())
                        print(message)
                        m=input("Enter standard messages...")

def main():
        serv=connect(host,port)
        m=input("Enter message here...")
        exchange_messages(m,serv)
        serv.close()

if __name__ == "__main__":
        main()
```

Ln: 22 Col: 27

C:\Windows\System32\cmd.exe

```
Microsoft Windows [Version 10.0.18362.418]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\geeta\Desktop>py gm3xb-part1-a-client-gm3xb.py
Enter message here...Hello from Client Geetanjali
Hello from Server Geetanjali
Enter another message... geeta
geeta
Enter standard messages...anjali
anjali
Enter standard messages...Bye from Client Geetanjali
Bye from Server Geetanjali

C:\Users\geeta\Desktop>
```

B)

Server-localhost

```python
import socket
host = ''
port = 1023
def bind(host,port):
    serv=socket.socket()
    serv.bind((host, port))
    print('messages ...')
    serv.listen(1)
    conn,addr = serv.accept()
    return conn
def transfer_data(conn):
    while True:
        data=conn.recv(1024)
        if str(data.decode()) == "exit":
            conn.send(str.encode("server gone"))
            print(str(data.decode()))
            break
        else:
            with open('output.txt', 'wb') as fp:
                while True:
                    print(data)
                    fp.write(data)
                    if str(data).find("File transfer complete") != -1:
                        fp.write(str.encode("\n This line was added by me in the Server !!! \n"))
                        print("\n This line was added by me in the Server !!! \n")
                        break
                    data = conn.recv(1024)
            fp = open('output.txt','rb')
            chunk = fp.read(1024)
            while (chunk):
                conn.send(chunk)
                chunk = fp.read(1024)
            fp.close()
            conn.send(str.encode("File sent back from server"))
def main():
    conn=bind(host, port)
    transfer_data(conn)
    conn.close()
if __name__ == "__main__":
    main()
```

File Edit Format Run Options Window Help

```python
import socket
host = ''
port = 1023
def bind(host,port):
        serv=socket.socket()
        serv.bind((host, port))
        print('messages ...')
        serv.listen(1)
        conn,addr = serv.accept()
        return conn
def transfer_data(conn):
        while True:
                data=conn.recv(1024)
                if str(data.decode()) == "exit":
                        conn.send(str.encode("server gone"))
                        print(str(data.decode()))
                        break
                else:
                        with open('output.txt', 'wb') as fp:
                                while True:
                                        print(data)
                                        fp.write(data)
                                        if str(data).find("File transfer complete") != -1:
                                                fp.write(str.encode("\n This line was added by me in the Server !!! \n"))
                                                print("\n This line was added by me in the Server !!! \n")
                                                break
                                        data = conn.recv(1024)

                        fp = open('output.txt','rb')
                        chunk = fp.read(1024)
                        while (chunk):
                                conn.send(chunk)
                                chunk = fp.read(1024)
                        fp.close()
                        conn.send(str.encode("File sent back from server"))
def main():
        conn=bind(host, port)
        transfer_data(conn)
        conn.close()

if __name__ == "__main__":
        main()
```

Ln: 36 Col: 0

```
Microsoft Windows [Version 10.0.18362.418]
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C:\Users\geeta\Desktop>py gm3xb-part1-b-server-gm3xb.py
messages ...
```

C:\Windows\System32\cmd.exe - py gm3xb-part1-b-server-gm3xb.py

\n8894279996606566122245246476739025836636961740221798143384506169709797876615015522415620193119156094455114077417058486277270353\n7131151035004395224877087554462361771017 9
7191823914572368240567366707143625845327130961184968537310263633609317282754672074065\n84321456653457820542123855214561006902880452720486535004101171610306829168223 9417817
994393465329387009583541601682870165139772\n980737999367331584188340682352204306262869486175909368235441117977700169645139918153317792665374016410871279256861775305778074 9
\n'
b'7552198060883514609633356358462724322863739238474217533806217264897669042731651388657558396154686026363774639912794923252267503\n62917714437857407325909829817199055245673
39994411151615939323485160260431350712239547320702908777027534814334898810771281406391\n83837259439098587017560509795189601023500553487260923443627704973954260602262525218671
6626586574811491995835598427931237638307288\n85072656673159002421805446086121478335739340121853407891939363463569412869170694814442515796977332869071793390046007293777378415
\n86882983913073430274813316620682688458139466649212728487648048872443149146034689307639191837785177304115044135475541548555526591\n531056854650761090404374723081924892607 48
378429213813654569298225055037929634415042037888284485976108603229745176667350279936699\n819051220461805851456301667573939123369640697556719899650254314611832698123868254231
3301537034074950744994938638623004424018628\n5962797353210542352910227068452267455627736914233254078275501019026029219977380762852165264848013890176220808626487330453830607
\n'
b'1392715231741123546207682784414187261145744424815836598165304144212321073536110482416294352751979189695534837507189501132643925\n9547196873348778230662094351866444 4096835
0070598680645168234676240974940189555597239317049349834110919151064594066868016066576\n90969558107442881620251527762652259795615110529822989412673309855711527823747204617 7
2752985049704669084322641186449467889515212\n4360617959299125510229120098324080014685874269740158168920103791183719182564147093120455055953437726626190390034258266196808 75
\n8242651081630156918805572079983037638369031262141838260427869758050055377235638965872717517504788429694521145838583513263909672\n44332594553724381059747754086277248807 360
6427733813789310838517882710447914930504782880082648592204977820782441134867651005571\n87188259848850492588592718685111563475735585476168354879962376953548317207725012961 2
1171500663173314753159506044722718279173640\n2709996430110563394535123371054969016136174141380219513450493806426805948941155396288212886477132071568170532718023856256400877
\n'
b'4412955918580719390710872526700485018418160226844433869987075876676044792011973789419662798626013873183203506118837233134120481\n87728195624261481997159320027762211759 47
1609679196041779768746741982208507115748053948203304791347360491896591008548736772035\n4625085282706988812822930138218466374524023159847349699030998731244290316248877616 12
7354994943514784160430249591960166158827428\n30122973352334874876869327916725048448939891571342804916267615897166810277253170819233520663757428230248104440510053885466092742 9
\n912391944620733659023529784004414956978783067544885207921781325412507856594055535715111215392969480125113217120379554994116392 0\n7476175369012980559938118310990110840174 5
991443258838780653611056281528377820890931358060828051725620676172452317710618388795 89\n47684699198712572849021955925163448332238519286917786966547590475837028485450908089
9254152913598427216007302226235522354860750\n5223927757227044947866784478462919350895723643402842384138354740120256079056226884847266693352002580953694527348195695223607106
\n'
b'4705073558122375415417200921965563405533347843275197814453910296613637292816403322858277400213988846375567124674868467361795016\n474572838515685283202962908042906475735 12
0765699184181768011549531548203964444795489444884397883116531876928170748198407144979 361\n53863148471821045992638104240396092287657889412317921571509436728332730302098800658
9792974721368333841513658700314945433634456\n368592022125225914298092606902707407712916809511333167777178222772793384362309456621927715718657491605868780228582755212432150 5
\n0794558617931775588320039074320252238014802597836590634824227249703483529574186006183975509386000848443692647358501225142361167\n39426797080281609958666072657715644232036
778799686799299853700442673482403206170333790725867563734900546052302194099038667954 69\n753659927676498313031594938387518794568650299416632032618921128037793368773098414146
0802381512939077916932152569652666724046409\n02923778256309662351586832415129710919445399296000657069928387762377250103368054904822028892759069248758951771227601051638909 8
\n'
b'41417776276231177741074118289732264693577443233759348970290971583479384990205235889491696359494182882711821042742475522298259 3\n02630994007762342596409848819400079479682
5058054474430407773607655795361609557345881430625353571860635069298162325592809109650\n0588327094996262431505059042095661828596107333578122924612340170790916991622058206 67
1333685104366780235136494027277232872825498\n1523246308282008538061408160202517775966824053244715248653671495274650673682535042749033828795099010214859776685551489176975506
\n5811209762314534687747281829159103097186141033482266881873367741901377849867980657673782575150574716948544315902892547679500399 8\n963436785863456556906133482371306765239 5
5561372248056220702510606833697646989872355666869136182759934340379879840576201228411 3File transfer complete'

This line was added by me in the Server !!!

Client-localhost

- import socket
- host = 'localhost'
- port = 1023
- def connect(host,port):
- serv=socket.socket()
- serv.connect((host, port))
- return serv
- def transfer_data(fname,serv):
- while True:
- if fname == "exit":
- serv.send(str.encode(fname))
- data=str(serv.recv(1024).decode())
- print(data)
- break
- else :
- f = open(fname,'rb')
- l = f.read(1024)
- print("data sending ", end =" ")
- while (l):
- print(".", end =" ")
- serv.send(l)
- l = f.read(1024)
- f.close()

- serv.send(str.encode("File transfer complete"))
- print("\n")
- while True:
- data = serv.recv(1024)
- if str(data).find("File sent back from server") != -1:
- break
- print(data)
- print("File received back\n")
- fname= input("Enter another file name or type exit : ")
- def main():
- serv=connect(host, port)
- fname=input('Enter file name here or type exit : ')
- transfer_data(fname,serv)
- serv.close()
- if __name__== "__main__":
- main()

```
import socket
host = 'localhost'
port = 1023
def connect(host,port):
        serv=socket.socket()
        serv.connect((host, port))
        return serv
def transfer_data(fname,serv):
        while True:
                if fname == "exit":
                        serv.send(str.encode(fname))
                        data=str(serv.recv(1024).decode())
                        print(data)
                        break
                else :
                        f = open(fname,'rb')
                        l = f.read(1024)
                        print("data sending ", end =" ")
                        while (l):
                                print(".", end =" ")
                                serv.send(l)
                                l = f.read(1024)
                        f.close()
                        serv.send(str.encode("File transfer complete"))
                        print("\n")

                        while True:
                                data = serv.recv(1024)
                                if str(data).find("File sent back from server") != -1:
                                        break
                                print(data)
                        print("File received back\n")
                        fname= input("Enter another file name or type exit : ")
def main():
        serv=connect(host, port)
        fname=input('Enter file name here or type exit : ')
        transfer_data(fname,serv)
        serv.close()

if __name__== "__main__":
        main()
```

C:\Windows\System32\cmd.exe - py gm3xb-part1-b-client-gm3xb.py

7313488650480436693818266503646189599903229321482013209499289781145673892194556599603\n4834236494451378286976564913106384851412866607459667235230175488097172277734513000370973157558689076209485032473704000016391407\n2906852713508769108670361019771730001144071549164484831831379900478841181050644197272573525704898859940233120236398416687240055\n'
b'4374843284474261559922201408952633150671870157517305411040726961843624607898601648184347808307024923212656070285299487288795732\n811744103393877825734007629562860043712724660467907159210048438533784573883338625964536870933885002883010079592546426217094412\n833641920548259524671447804072867851592023107794052741344231354099085946012978536731052482130059712503900533056025576044620718\n340756995774524067274841004808582447614610764474179184536752075345651488860714532223947992274261007073546516442200632615436901\n889427999606056412224524647673902583663696174022179814338450616970979787661501552241562019311915609445511407741705848627727035\n7131151035004395224877087554662361771017971918239145723682405736670714362584532713096118496853731026363609317282754672074065\n843214566534578205421238552145610069028804527204865350041011716103068291682239417817994393465329387009583541601682870165139772\n980737999367331584188340682352204306262869486175909368235441179777001696451399181533177926653740164108712792568617753057780749\n'
b'7552198060883514609633356358462724322863739238474217533806217264897669042731651388657558396154686026363774639912794923252267503\n629177144378574073259098298171990552456733999441115161593932348516026043135071223954732070290877702753481433489881077128140639\n838372594390985870175605097951896010235005534872609234436270497395426060226252186716626586574811491995835598427931237638307288\n850726566731590024218054460861214783357393401218534078919393636435694128691706948144251579697773328690717939900460072937773784\n8688298391307343027481331662068268845813946664921272848764804887244314914604368930763919183778517730411504413547554154855526591\n5310568546507610904043747230819248926074838429213813654569298225055037929634415042037888284485976108603229745176667350279936\n99\n81905122046180585145630166757393912336964069755671989965025431461183269812386825423133015370340749507449949386386230044240186\n28\n596279735321054235291022706845226745562773691423325407827550101902602921997738076285216526484801389017622080862648733045383060\n7\n'
b'13927152317411235462076827844141872611457444248158369816530414421232107353611048241629435275197918969553483750718950113264392\n5\n954719687334877823066209435186644440968350070598680645168234676240974940189555597239317049349834110919151064594066868016066576\n7\n90969558107442881620251527762652259795615110529822989412673309855711527823747204617727529850497046690843226411864494678895152\n12\n436061795929912551022912009832408001468587426974015818689201037911837191825641470931204550559534377266261903900342582661968087\n5\n82426510816301569188055720799830376383690312621418382604278697580500553772356389658727175175047884296945211458385835132639096\n72\n6427733813789310838517882710447914930504782880082648592204977820782441134867651005571\n8\n87188259848850492588592718685111563475735585476168354879962376953548317207725012961\n2\n11715006631733147531595060447227182791736\n40\n270999643011056339453512337105496901613617414138021951345049380642680594894115539628821882647713207156817053271802385625640087\n7\n'
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File received back

Enter another file name or type exit :

```
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C:\Users\wwwte\Downloads>py gm3xb-part1-a-server-gm3xb.py
Messages are below
Hello from Client Geetanjali
geeta
anjali
Bye from Client Geetanjali

C:\Users\wwwte\Downloads>_
```

Client:


```
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C:\Users\wwwte\Downloads>py gm3xb-part1-a-client-gm3xb.py
Enter message here...Hello from Client Geetanjali
Hello from Server Geetanjali
Enter another message... geeta
geeta
Enter standard messages...anjali
anjali
Enter standard messages...Bye from Client Geetanjali
Bye from Server Geetanjali

C:\Users\wwwte\Downloads>
```

B)

Server:


```
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C:\Users\wwwte\Downloads>py gm3xb-part1-b-server-gm3xb.py
messages ...
```

C:\Windows\System32\cmd.exe - py gm3xb-part1-b-server-gm3xb.py

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\n'
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\n868829839130734302748133166206826884581394666492127284876480488724431491460346893076391918377851773041150441354755415485552659 1\n531056854650761090404374723081924890748
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5561372248056220702510606833697646989872355666869136182759934340379879840576201228411 3File transfer complete'

 This line was added by me in the Server !!!

Client:

C:\Windows\System32\cmd.exe - py gm3xb-part1-b-client-gm3xb.py
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C:\Users\wwwte\Downloads>py gm3xb-part1-b-client-gm3xb.py
Enter file name here or type exit : inp.txt
data sending . . . .
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C:\Windows\System32\cmd.exe - py gm3xb-part1-b-client-gm3xb.py

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\n'
File received back

Enter another file name or type exit : _
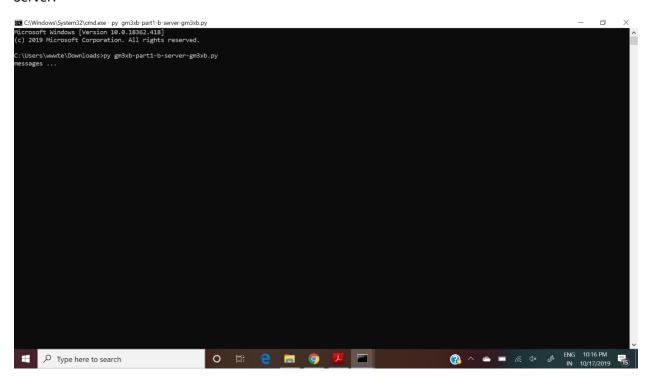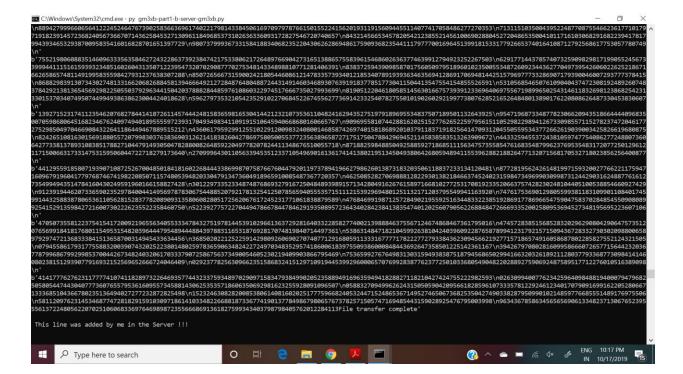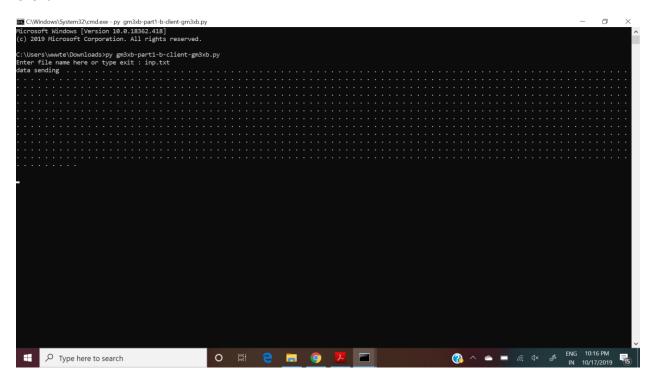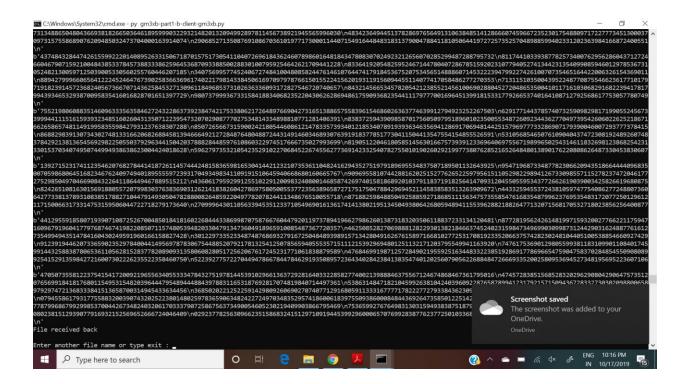
Drive link for codes and .txt files (input and output)

https://drive.google.com/open?id=13rcTenSrAyB9GB9OK0fOymwhMYvv9cTG