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Encryption non-PKE HW QUESTION 1: TASK ! DECODE A MESSAGE

ORIGINAL MESSAGE:

BRKYVIZEV AFYEJFE SZFXIRGYP. SZFXIRGYP SP DRIXFK CVV JYVKKVICP. SVZEX YREUGZTBVU KF SV FEV FW KYIVV SCRTB JKLUVEKJ KF ZEKVXIRKV NVJK MZIXZEZR'J XIRULRKV JTYFFCJ ZJ JFDVKYZEX KYRK DREP GVFGCV NFLCU TFEJZUVI FEV FW KYVZI CZWV.J DFJK EFKRSCV DFDVEKJ, SLK ZK'J ALJK FEV FW JVMVIRC SIVRBKYIFLXYJ KYRK YRMV DRIBVU BRKYVIZEV AFYEJFE'J CFEX REU IVDRIBRSCV CZWV. SFIE ZE NYZKV JLCGYLI JGIZEXJ, NVJK MZIXZEZR, ZE 1918, YVI ZEKVEJV TLIZFJZKP REU SIZCCZRETV NZKY ELDSVIJ MRLCKVU YVI RYVRU JVMVIRC XIRUVJ ZE JTYFFC. SP 13, JYV NRJ RKKVEUZEX KYV YZXY JTYFFC FE KYV TRDGLJ FW YZJKFIZTRCCP SCRTB NVJK MZIXZEZR JKRKV TFCCVXV. RK 18, JYV VEIFCCVU ZE KYV TFCCVXV ZKJVCW, NYVIV JYV DRUV HLZTB NFIB FW KYV JTYFFC'J DRKY TLIIZTLCLD REU WFLEU R DVEKFI ZE DRKY GIFWVJJFI N. N. JTYZVWWVCZE TCRPKFI, KYV KYZIU RWIZTRE RDVIZTRE KF VRIE R GYU ZE DRKYVDRKZTJ. JYV XIRULRKVU NZKY YZXYVJK YFEFIJ ZE 1937 REU KFFB R AFS KVRTYZEX RK R SCRTB GLSCZT JTYFFC ZE MZIXZEZR. NYVE NVJK MZIXZEZR UVTZUVU KF HLZVKCP ZEKVXIRKV ZKJ XIRULRKV JTYFFCJ ZE 1939, NVJK MZIXZEZR JKRKV'J GIVJZUVEK, UI. AFYE N. URMZJ, JVCVTKVU YVI REU KNF DVE KF SV KYV WZIJK SCRTB JKLUVEKJ FWWVIVU JGFKJ RK KYV JKRKV'J WCRXJYZG JTYFFC, NVJK MZIXZEZR LEZMVIJZKP. JYV CVWK YVI KVRTYZEX AFS REU VEIFCCVU ZE KYV XIRULRKV DRKY GIFXIRD. RK KYV VEU FW KYV WZIJK JVJJZFE, YFNVMVI, JYV UVTZUVU KF CVRMV JTYFFC KF JKRIK R WRDZCP NZKY YVI WZIJK YLJSREU, ARDVJ XFSCV. JYV IVKLIEVU KF KVRTYZEX NYVE YVI KYIVV URLXYKVIJ XFK FCUVI, SLK ZK NRJE'K LEKZC 1952 KYRK R IVCRKZMV KFCU YVI RSFLK FGVE GFJZKZFEJ RK KYV RCC-SCRTB NVJK RIVR TFDGLKZEX JVTKZFE RK KYV ERKZFERC RUMZJFIP TFDDZKKVV WFI RVIFERLKZTJ' (ERTR'J) CREXCVP CRSFIRKFIP, YVRUVU SP WVCCFN NVJK MZIXZEZRE UFIFKYP MRLXYRE. BRKYVIZEV REU YVI YLJSREU UVTZUVU KF DFMV KYV WRDZCP KF EVNGFIK EVNJ, MZIXZEZR, KF GLIJLV KYV FGGFIKLEZKP, REU BRKYVIZEV SVXRE NFIB RK CREXCVP ZE KYV JLDDVI FW 1953. ALJK KNF NVVBJ ZEKF YVI KVELIV ZE KYV FWWZTV, UFIFKYP MRLXYRE RJJZXEVU YVI KF R GIFAVTK ZE KYV DREVLMVI CFRUJ SIRETY FW KYV WCZKYK IVJVRITY UZMZJZFE, REU BRKYVIZEV'J KVDGFIRIP GFJZKZFE JFFE SVTRDV GVIDREVEK. JYV JGVEK KYV EVOK WFLI PVRIJ RERCPQZEX URKR WIFD WCZKYK KVJKJ REU NFIBVU FE KYV ZEMVJKZXRKZFE FW R GCREV TIRJY TRLJVU SP NRBV KLISLCVETV. RJ JYV NRJ NIRGGZEX LG KYZJ NFIB YVI YLJSREU UZVU FW TRETVI ZE UVTVDSVI 1956. KYV 1957 CRLETY FW KYV JFMZVK JRKVCCZKV JGLKEZB TYREXVU YZJKFIP—REU AFYEJFE'J CZWV, ZE 1957, JYV GIFMZUVU JFDV FW KYV DRKY WFI KYV 1958 UFTLDVEK EFKVJ FE JGRTV KVTYEFCFXP, R TFDGVEUZLD FW R JVIZVJ FW 1958 CVTKLIVJ XZMVE SP VEXZEVVIJ ZE KYV WCZKYK IVJVRITY UZMZJZFE REU KYV GZCFKCVJJ RZITIRWK IVJVRITY UZMZJZFE (GRIU). VEXZEVVIJ WIFD KYFJV XIFLGJ WFIDVJJ KYV TFIV FW KYV JGRTV KRJB XIFLG, KYV ERTR J WZIJK FWWZTZRC WFIRP ZEKF JGRTV KIRMVC. AFYEJFE, NYF YRU NFIBVU NZKY DREP FW KYVD JZETV TFDZEX KF CREXCVP, "TRDV RCFEX NZKY KYV GIFXIRD" RJ KYV ERTR SVTRDV ERJR CRKVI KYRK PVRI. JYV UZU KIRAVTKFIP RERCPJZJ WFI RCRE JYVGRIU'J DRP 1961 DZJJZFE WIVVUFD 7, RDVIZTR'J WZIJK YLDRE JGRTVWCZXYK. ZE 1960, JYV REU VEXZEVVI KVU JBFGZEJBZ TFRLKYFIVU UVKVIDZERKZFE FW RQZDLKY REXCV RK SLIEFLK WFI GCRTZEX R JRKVCCZKV FMVI R JVCVTKVU VRIKY GFJZKZFE, R IVGFIK CRPZEX FLK KYV VHLRKZFEJ UVJTIZSZEX RE FISZKRC JGRTVWCZXYK ZE NYZTY KYV CREUZEX GFJZKZFE FW KYV JGRTVTIRWK ZJ JGVTZWZVU. ZK NRJ KYV WZIJK KZDV R NFDRE ZE KYV WCZXYK IVJVRITY UZMZJZFE YRU IVTVZMVU TIVUZK RJ RE RLKYFI FW R IVJVRITY IVGFIK. ZE 1962, RJ ERJR GIVGRIVU WFI KYV FISZKRC DZJJZFE FW AFYE XCVEE, AFYEJFE NRJ TRCCVU LGFE KF UF KYV NFIB KYRK JYV NFLCU SVTFDV DFJK BEFNE WFI. KYV TFDGCVOZKP FW KYV FISZKRC WCZXYK YRU IVHLZIVU KYV TFEJKILTKZFE FW R NFICUNZUV TFDDLEZTRKZFEJ EVKNFIB, CZEBZEX KIRTBZEX JKRKZFEJ RIFLEU KYV NFICU KF ZSD TFDGLKVIJ ZE NRJYZEXKFE, TRGV TRERMVIRC ZE WCFIZUR, REU SVIDLUR. KYV TFDGLKVIJ YRU SVVE GIFXIRDDVU NZKY KYV FISZKRC VHLRKZFEJ KYRK NFLCU TFEKIFC KYV KIRAVTKFIP FW KYV TRGJLCV ZE XCVEE'J WIZVEUJYZG 7 DZJJZFE WIFD CZWKFWW KF JGCRJYUFNE, SLK KYV RJKIFERLKJ NVIV NRIP FW GLKKZEX KYVZI CZMVJ ZE KYV TRIV FW KYV VCVTKIFEZT TRCTLCRKZEX DRTYZEVJ, NYZTY NVIV GIFEV KF YZTTLGJ REU SCRTBFLKJ. RJ R GRIK FW KYV GIVWCZXYK TYVTBCZJK, XCVEE RJBVU VEXZEVVIJ KF "XVK KYV XZIC"—AFYEJFE—KF ILE KYV JRDV ELDSVIJ KYIFLXY KYV JRDV VHLRKZFEJ KYRK YRU SVVE GIFXIRDDVU ZEKF KYV TFDGLKVI, SLK SP YREU, FE YVI UVJBKFG DVTYREZTRC TRCTLCRKZEX DRTYZEV. "ZW JYV JRPJ KYVP'IV XFFU,'" BRKYVIZEV AFYEJFE IVDVDSVIJ KYV RJKIFERLK JRPZEX, "KYVE Z'D IVRUP KF XF." XCVEE'J WCZXYK NRJ R JLTTVJJ, REU DRIBVU R KLIEZEX GFZEK ZE KYV TFDGVKZKZFE SVKNVVE KYV LEZKVU JKRKVJ REU KYV JFMZVK LEZFE ZE JGRTV. NYVE RJBVU KF ERDV YVI XIVRKVJK TFEKIZSLKZFE KF JGRTV VOGCFIRKZFE, AFYEJFE NFLCU KRCB RSFLK KYV TRCTLCRKZFEJ KYRK YVCGVU JPETY GIFAVTK RGFCCF'J CLERI DFULCV NZKY KYV CLERI-FISZKZEX TFDDREU REU JVIMZTV DFULCV. JYV RCJF NFIBVU FE KYV JGRTV JYLKKCV REU KYV VRIKY IVJFLITVJ KVTYEFCFXP JRKVCCZKV (VIKJ, CRKVI IVERDVU CREUJRK) REU RLKYFIVU FI TFRLKYFIVU 26 IVJVRITY IVGFIKJ, JYV IVKZIVU ZE 1986, RWKVI 33 PVRIJ RK CREXCVP. "Z CFMVU XFZEX KF NFIB VMVIP JZEXCV URP." JYV JRZU. ZE 2015, RK RXV 97, AFYEJFE RUUVU REFKYVI VOKIRFIUZERIP RTYZVMVDVEK KF YVI CFEX CZJK: GIVJZUVEK SRIRTB FSRDR RNRIUVU YVI KYV GIVJZUVEKZRC DVURC FW WIVVUFD, RDVIZTR'J YZXYVJK TZMZCZRE YFEFI. JYV UZVU FE WVS. 24, 2020. ERJR RUDZEZJKIRKFI ARDVJ SIZUVEJKZEV JRZU, 'FLI ERJR WRDZCP ZJ JRU KF CVRIE KYV EVNJ KYRK BRKYVIZEV AFYEJFE GRJJVU RNRP KYZJ DFIEZEX RK 101 PVRIJ FCU. JYV NRJ RE RDVIZTRE YVIF REU YVI GZFEVVIZEX CVXRTP NZCC EVMVI SV WFIXFKKVE.'

NOTE: Approximate word count = 884

PROCESS TO OBTAIN KEY:

STEP 1:

Began with a search for the frequency of two letter phrases and then three letter phrases.

FREQUENCY CHART:

CYPHER PHRASE (TWO LETTERS)	FREQUENCY
KF	41
ZJ	20
FW	33

RATIONALE:

- At this point I decided to look for frequencies in three letter phrases after going to https://www3.nd.edu/~busiforc/handouts/cryptography/letterfrequencies.html
- Realizing that the letter **e** and **t** are the most frequently used in the english language letters and of the most common three letter words in the english language are: ***the, and****, for, are, but, not, you, all, any, can, had, her, was, one, our, out, day, get, has, him, his, how, man, new, now, old, see, two, way, who, boy, did, its, let, put, say, she, too, use,* SOURCE:https://www3.nd.edu/~busiforc/handouts/cryptography/cryptography%20hints.html
  I decided to focus on potential three letter word phase that might equate to ***the*** and ***and,*** which have the highest frequency of use in the english language and noticed that **KYV** had the highest frequency so I formed a hypothesis that **KYV** could, with a high probability represent the words ***the*** or ***and***

CYPHER PHRASE (THREE LETTERS)	FREQUENCY
REU	30
JYV	21
KYV	79
FLK	4
FEV	5
SLK	5
YVI	26
NRJ	8

STEP 2:

Created a hypothesis that KYV could potentially be translated to ***the*** or ***and*** being that they have a high frequency in the english language.

HYPOTHESIS:

If K is the decrypted letter "T"… then a shift of 17 would render the letter Y as an "H" and a shift of 17 would render the letter V an "E"

If K is the Letter “T” then the question is how many shifts backward (decrypt) will give the decrypted letter T

TEST 1:	A	B	C	D	E	F	G	H	I	J	**K**	L	M	N	O	P	Q	R	S	***T***	U	V	W	X	Y	Z
SHIFT COUNT	10	9	8	7	6	5	4	3	2	1	0									17	16	15	14	13	12	11

TRIAL 2: If Y is the Letter H then a 17 backward shift will give the decrypted letter “H”;

TEST 2:	A	B	C	D	E	F	G	**H**	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	***Y***	Z
SHIFT COUNT								17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

TRIAL 3: If V is the Letter E then a 17 backward shift will give the decrypted letter “E”;

TEST 3:	A	B	C	D	E	F	G	**H**	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	***Y***	Z
SHIFT COUNT								17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	

SUMMARY:

coded	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
decoded	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	A	B	C	D	E	F	G	H	I

NOTE: With this key J in the encoded message is equal to a decrypted letter “A”

SOME TRANSLATIONS:

CYPHER PHRASE OF TWO LETTERS	TRANSLATED
KF	TO
ZJ	IS
FW	OF
CYPHER PHRASE OF THREE LETTERS	TRANSLATED
REU	AND
JYV	SHE
KYV	THE
FLK	OUT
FEV	ONE
SLK	BUT
YVI	HER
NRJ	WAS

NOW THAT I HAVE THE KEY, I BUILT A PYTHON PROGRAM TO DECODE THE MESSAGE:

Link to code in repl it follows: https://replit.com/@jmtheo8/HW2TASK1#main.py

Translated Message:

KATHERINE JOHNSON BIOGRAPHY. BIOGRAPHY BY MARGOT LEE SHETTERLY. BEING HANDPICKED TO BE ONE OF THREE BLACK STUDENTS TO INTEGRATE WEST VIRGINIA’S GRADUATE SCHOOLS IS SOMETHING THAT MANY PEOPLE WOULD CONSIDER ONE OF THEIR LIFE’S MOST NOTABLE MOMENTS, BUT IT’S JUST ONE OF SEVERAL BREAKTHROUGHS THAT HAVE MARKED KATHERINE JOHNSON’S LONG AND REMARKABLE LIFE. BORN IN WHITE SULPHUR SPRINGS, WEST VIRGINIA, IN 1918, HER INTENSE CURIOSITY AND BRILLIANCE WITH NUMBERS VAULTED HER AHEAD SEVERAL GRADES IN SCHOOL. BY 13, SHE WAS ATTENDING THE HIGH SCHOOL ON THE CAMPUS OF HISTORICALLY BLACK WEST VIRGINIA STATE COLLEGE. AT 18, SHE ENROLLED IN THE COLLEGE ITSELF, WHERE SHE MADE QUICK WORK OF THE SCHOOL’S MATH CURRICULUM AND FOUND A MENTOR IN MATH PROFESSOR W. W. SCHIEFFELIN CLAYTOR, THE THIRD AFRICAN AMERICAN TO EARN A PHD IN MATHEMATICS. SHE GRADUATED WITH HIGHEST HONORS IN 1937 AND TOOK A JOB TEACHING AT A BLACK PUBLIC SCHOOL IN VIRGINIA. WHEN WEST VIRGINIA DECIDED TO QUIETLY INTEGRATE ITS GRADUATE SCHOOLS IN 1939, WEST VIRGINIA STATE’S PRESIDENT, DR. JOHN W. DAVIS, SELECTED HER AND TWO MEN TO BE THE FIRST BLACK STUDENTS OFFERED SPOTS AT THE STATE’S FLAGSHIP SCHOOL, WEST VIRGINIA UNIVERSITY. SHE LEFT HER TEACHING JOB AND ENROLLED IN THE GRADUATE MATH PROGRAM. AT THE END OF THE FIRST SESSION, HOWEVER, SHE DECIDED TO LEAVE SCHOOL TO START A FAMILY WITH HER FIRST HUSBAND, JAMES GOBLE. SHE

RETURNED TO TEACHING WHEN HER THREE DAUGHTERS GOT OLDER, BUT IT WASN'T UNTIL 1952 THAT A RELATIVE TOLD HER ABOUT OPEN POSITIONS AT THE ALL-BLACK WEST AREA COMPUTING SECTION AT THE NATIONAL ADVISORY COMMITTEE FOR AERONAUTICS' (NACA'S) LANGLEY LABORATORY, HEADED BY FELLOW WEST VIRGINIAN DOROTHY VAUGHAN. KATHERINE AND HER HUSBAND DECIDED TO MOVE THE FAMILY TO NEWPORT NEWS, VIRGINIA, TO PURSUE THE OPPORTUNITY, AND KATHERINE BEGAN WORK AT LANGLEY IN THE SUMMER OF 1953. JUST TWO WEEKS INTO HER TENURE IN THE OFFICE, DOROTHY VAUGHAN ASSIGNED HER TO A PROJECT IN THE MANEUVER LOADS BRANCH OF THE FLIGHT RESEARCH DIVISION, AND KATHERINE'S TEMPORARY POSITION SOON BECAME PERMANENT. SHE SPENT THE NEXT FOUR YEARS ANALYZING DATA FROM FLIGHT TESTS AND WORKED ON THE INVESTIGATION OF A PLANE CRASH CAUSED BY WAKE TURBULENCE. AS SHE WAS WRAPPING UP THIS WORK HER HUSBAND DIED OF CANCER IN DECEMBER 1956. THE 1957 LAUNCH OF THE SOVIET SATELLITE SPUTNIK CHANGED HISTORY—AND JOHNSON'S LIFE. IN 1957, SHE PROVIDED SOME OF THE MATH FOR THE 1958 DOCUMENT NOTES ON SPACE TECHNOLOGY, A COMPENDIUM OF A SERIES OF 1958 LECTURES GIVEN BY ENGINEERS IN THE FLIGHT RESEARCH DIVISION AND THE PILOTLESS AIRCRAFT RESEARCH DIVISION (PARD). ENGINEERS FROM THOSE GROUPS FORMED THE CORE OF THE SPACE TASK GROUP, THE NACA'S FIRST OFFICIAL FORAY INTO SPACE TRAVEL. JOHNSON, WHO HAD WORKED WITH MANY OF THEM SINCE COMING TO LANGLEY, "CAME ALONG WITH THE PROGRAM" AS THE NACA BECAME NASA LATER THAT YEAR. SHE DID TRAJECTORY ANALYSIS FOR ALAN SHEPARD'S MAY 1961 MISSION FREEDOM 7, AMERICA'S FIRST HUMAN SPACEFLIGHT. IN 1960, SHE AND ENGINEER TED SKOPINSKI COAUTHORED DETERMINATION OF AZIMUTH ANGLE AT BURNOUT FOR PLACING A SATELLITE OVER A SELECTED EARTH POSITION, A REPORT LAYING OUT THE EQUATIONS DESCRIBING AN ORBITAL SPACEFLIGHT IN WHICH THE LANDING POSITION OF THE SPACECRAFT IS SPECIFIED. IT WAS THE FIRST TIME A WOMAN IN THE FLIGHT RESEARCH DIVISION HAD RECEIVED CREDIT AS AN AUTHOR OF A RESEARCH REPORT. IN 1962, AS NASA PREPARED FOR THE ORBITAL MISSION OF JOHN GLENN, JOHNSON WAS CALLED UPON TO DO THE WORK THAT SHE WOULD BECOME MOST KNOWN FOR. THE COMPLEXITY OF THE ORBITAL FLIGHT HAD REQUIRED THE CONSTRUCTION OF A WORLDWIDE COMMUNICATIONS NETWORK, LINKING TRACKING STATIONS AROUND THE WORLD TO IBM COMPUTERS IN WASHINGTON, CAPE CANAVERAL IN FLORIDA, AND BERMUDA. THE COMPUTERS HAD BEEN PROGRAMMED WITH THE ORBITAL EQUATIONS THAT WOULD CONTROL THE TRAJECTORY OF THE CAPSULE IN GLENN'S FRIENDSHIP 7 MISSION FROM LIFTOFF TO SPLASHDOWN, BUT THE ASTRONAUTS WERE WARY OF PUTTING THEIR LIVES IN THE CARE OF THE ELECTRONIC CALCULATING MACHINES, WHICH WERE PRONE TO HICCUPS AND BLACKOUTS. AS A PART OF THE PREFLIGHT CHECKLIST, GLENN ASKED ENGINEERS TO "GET THE GIRL"—JOHNSON—TO RUN THE SAME NUMBERS THROUGH THE SAME EQUATIONS THAT HAD BEEN PROGRAMMED INTO THE COMPUTER, BUT BY HAND, ON HER DESKTOP MECHANICAL CALCULATING MACHINE. "IF SHE SAYS THEY'RE GOOD,'" KATHERINE JOHNSON REMEMBERS THE ASTRONAUT SAYING, "THEN I'M READY TO GO." GLENN'S FLIGHT WAS A SUCCESS, AND MARKED A TURNING POINT IN THE COMPETITION BETWEEN THE UNITED STATES AND THE SOVIET UNION IN SPACE. WHEN ASKED TO NAME HER GREATEST CONTRIBUTION TO SPACE EXPLORATION, JOHNSON WOULD TALK ABOUT THE CALCULATIONS THAT HELPED SYNCH PROJECT APOLLO'S LUNAR MODULE WITH THE LUNAR-ORBITING COMMAND AND SERVICE MODULE. SHE ALSO WORKED ON THE SPACE SHUTTLE AND THE EARTH RESOURCES TECHNOLOGY SATELLITE (ERTS, LATER RENAMED LANDSAT) AND AUTHORED OR COAUTHORED 26 RESEARCH REPORTS. SHE RETIRED IN 1986, AFTER 33 YEARS AT LANGLEY. "I LOVED GOING TO WORK EVERY SINGLE DAY," SHE SAID. IN 2015, AT AGE 97, JOHNSON ADDED ANOTHER EXTRAORDINARY ACHIEVEMENT TO HER LONG LIST: PRESIDENT BARACK OBAMA AWARDED HER THE PRESIDENTIAL MEDAL OF FREEDOM, AMERICA'S HIGHEST CIVILIAN HONOR. SHE DIED ON FEB. 24, 2020. NASA ADMINISTRATOR JAMES BRIDENSTINE SAID, 'OUR NASA FAMILY IS SAD TO LEARN THE NEWS THAT KATHERINE JOHNSON PASSED AWAY THIS MORNING AT 101 YEARS OLD. SHE WAS AN AMERICAN HERO AND HER PIONEERING LEGACY WILL NEVER BE FORGOTTEN.

Name: Jerusha Theobald

Encryption non-PKE HW QUESTION 2: TASK 2

Transposition Cipher

plaintext = There is no spoon.

key = 8, thus you have 8 columns to build the transposition encryption of the plaintext

So..
Column 0 is the content of index 0 in the list
Column 1 is the content of index 1 in the list
…
Column 8 is the content of index 8 in the list

Unencrypted plaintext representation

T	**h**	**e**	**r**	**e**		**i**	**s**
	n	**o**		**s**	**p**	**o**	**o**
n	**.**						

The number of characters in the plaintext is 18, thus a total of 18 characters will be encrypted via transposition

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 =

There is no spoon.

Encrypted representation

column 0	column 1	column 2	column 3	column 4	column 5	column 6	column 7
T	**h**	**e**	**r**	**e**		**i**	**s**
0 + 0 = 0 (0 character of the encrypted plaintext is the letter “T”)	1 + 0 = 1	2 + 0 = 2	3 + 0 = 3	4 + 0 = 4	5:+ 0 = 5	6 + 0 = 6	7 + 0 = 7
	n	**o**		**s**	**p**	**o**	**o**
0 + 8 = 8 (Add 8 and you will get the **2nd** character of the encrypted plaintext which is a blank space_)	1 + 8 = 9	2 + 8 = 10	3 + 8 = 11	4 + 8 = 12	5 + 8 = 13	6 + 8 = 14	7 + 8 =15
n	**.**						
0 + 16 = 16 (Add 8 and you will get the **3rd** character of the encrypted text which is the letter n)	1 + 16 = 17						

Notes:
The 0 character in the plaintext is the letter “T”, because the index always begins at 0.
_ means a blank space is present

PROCESS TO CREATING THE TRANSPOSITION CIPHER BY SKETCH:

As you go down column 0 (index 0) the encrypted text would be: T_ n

As you go down column 1 the encrypted text is: hn.

As you go down column 2 the encrypted text is: eo_

As you go down column 3 the encrypted text is: r_

As you go down column 4 the encrypted text is: es

As you go down column 5 the encrypted text is: _p

As you go down column 6 the encrypted text is: io

As you go down column 7 the encrypted text is: so

Appended together beginning at index 0, the encrypted transposition cipher is:

T_nhn.eo_r_es_pioso or T nhn.eo r es pioso

ALGORITHM TO CREATING THIS TRANSPOSITION CIPHER BY PYTHON on repl it:
https://replit.com/@jmtheo8/HW2TASK-2#main.py