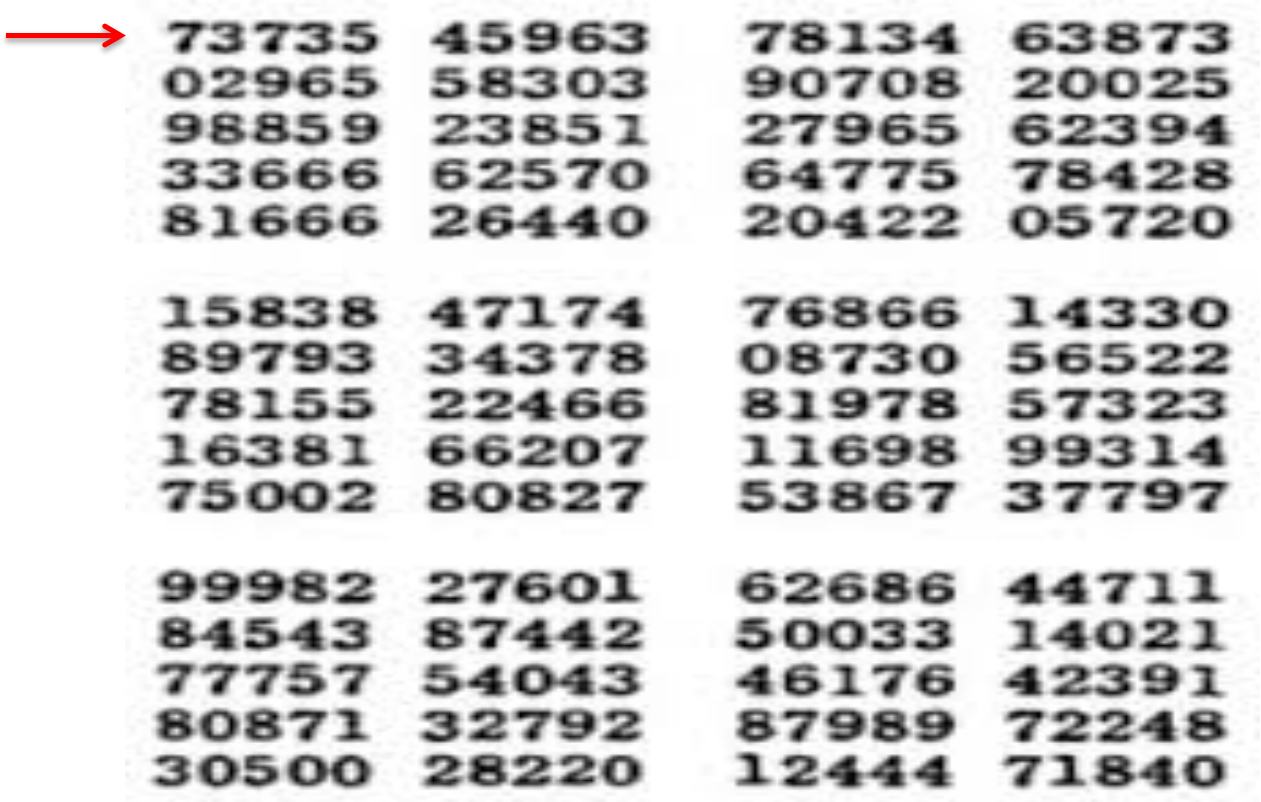
Assignment 1

Due May 15th 2017 23:59 pm

1. At the Corporation Y, the ages of all new employees hired during the last 5 years are *normally distributed*. Within this curve, approx. 95% of the ages, centered about the mean, are between 24.6 and 37.4 years. Find the mean age and the standard deviation of the data. What is the age range of approximately the entire population?

2. You are designing a research project monitoring the use of cell phones among 50 students in your class. Since it would be difficult to monitor all 50 students, you have decided to only monitor 5 students. To avoid any selection bias, you have to randomly select the 5 students. The students are assigned attendance numbers 01-50. Using the random number table below, please find the 5 students /attendance number you will monitor

(Please start at the first line)



| | | | |
|---|---|---|---|
| 73735 | 45963 | 78134 | 63873 |
| 02965 | 58303 | 90708 | 20025 |
| 98859 | 23851 | 27965 | 62394 |
| 33666 | 62570 | 64775 | 78428 |
| 81666 | 26440 | 20422 | 05720 |
| 15838 | 47174 | 76866 | 14330 |
| 89793 | 34378 | 08730 | 56522 |
| 78155 | 22466 | 81978 | 57323 |
| 16381 | 66207 | 11698 | 99314 |
| 75002 | 80827 | 53867 | 37797 |
| 99982 | 27601 | 62686 | 44711 |
| 84543 | 87442 | 50033 | 14021 |
| 77757 | 54043 | 46176 | 42391 |
| 80871 | 32792 | 87989 | 72248 |
| 30500 | 28220 | 12444 | 71840 |

3. Manufacturing company X would like to look at the work quality of the employees. It is assumed that the more hours that an employee works in a day are positively associated to the number of products that the employee makes.

| **Employee** | Hours worked | **Number of products** |
|---|---|---|
| 1 | 10 | 11 |
| 2 | 5 | 9 |
| 3 | 8 | 10 |
| 4 | 1 | 1 |
| 5 | 8 | 7 |
| 6 | 6 | 8 |
| 7 | 7 | 7 |

- Please give the measures of center, spread of the hours worked and the number of products.
- What is the response variable? What is the explanatory variable?
- Company X would like to visually see the association of hours worked and number of products produced- Plot a scatterplot of the data
- What is the correlation coefficient? Please interpret
- Please give the least square regression line equation- show work

## Additional exercise

**This exercise is only for those who were not able to see the assignment on April 24th.**

**If you submitted the in class exercise on April 24th, these exercises will not count/add any additional points to your grade.**

Cholesterol Data

| Measurement | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|
| Method 1 | 177 | 193 | 195 | 209 | 226 |
| Method 2 | 192 | 197 | 200 | 202 | 209 |

Cholesterol was measured five times for a single person using two different methods.

- ✧ For the cholesterol example, what is the mean , median, range, IQR for both method1 and method2
  - Input into SPSS and run to check answers.
  - Give plots to describe the data (histogram, box plot)