

State-wide covid19 Lockdown

Group 1

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Introduction



- Corona Virus is an important human and animal pathogen. At the end of 2019, a novel corona virus was identified as the cause of a cluster of pneumonia cases spreading quickly across the global causing a global pandemic.
 - This particular virus is highly contagious and spreads quickly through respiratory droplets from coughing, sneezing or talking.
 - To negate the spread of this virus, a state of emergency is being declared causing the government to impose a lockdown.
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Objectives



To implement a
state wide
lockdown



To ensure social
distancing across
the state



To curb the spread
of the virus



To reduce the
infection or
positivity rate



To impose and
implement new
traveling
guidelines



To spread
awareness in the
neighborhoods



To ensure there is
adequate historical
data to gauge the
demand and thereby
maintain the
required safety stock
of materials

Major Pros and Cons

Pros

- Saving lives
- Drop in pollution
- Less dependence on natural non-renewable resources

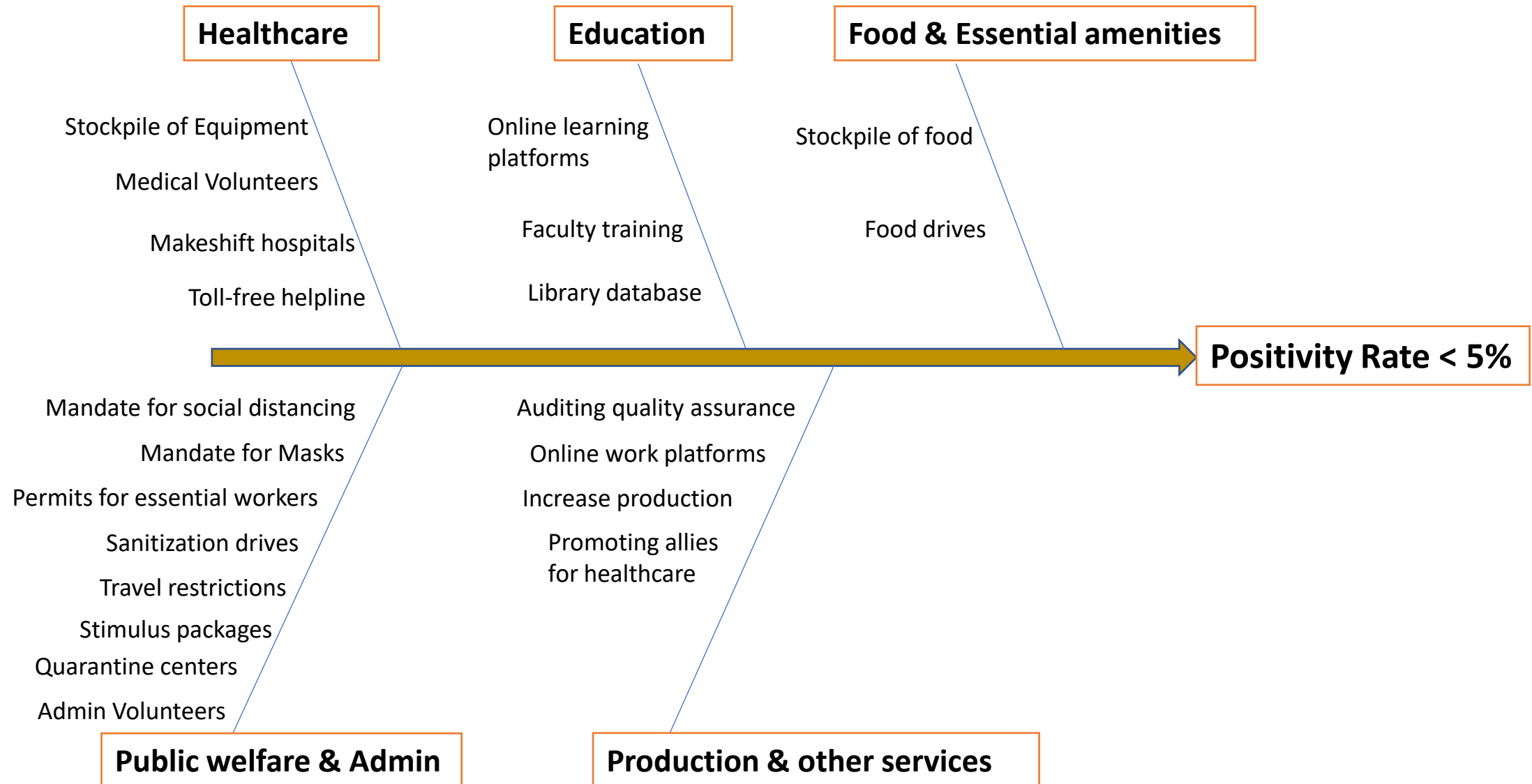


Cons

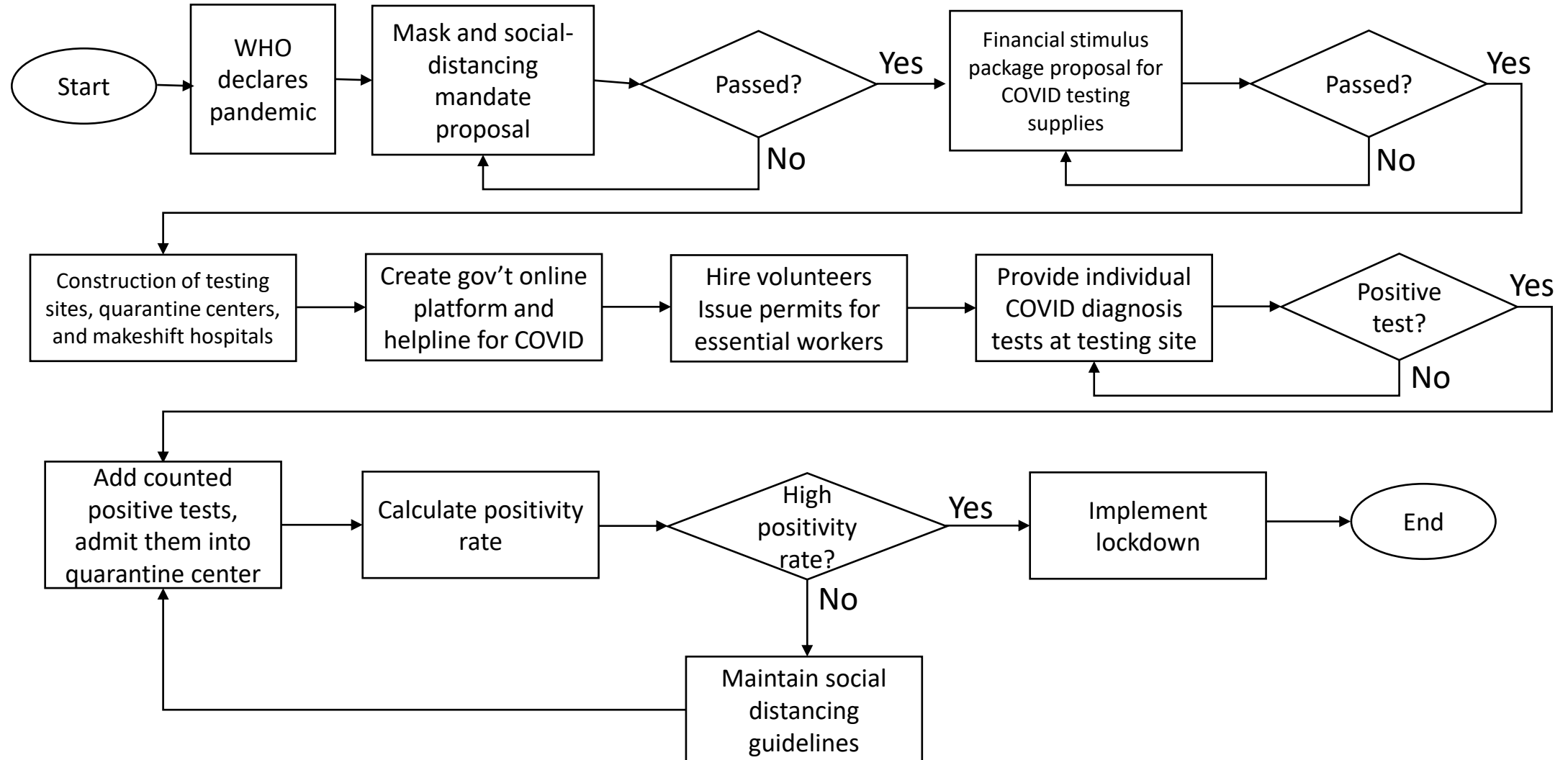
- Economic downturn
- Disruption to education
- Mental health
- Delayed completion of projects

Affinity Diagram (Brainstorming)

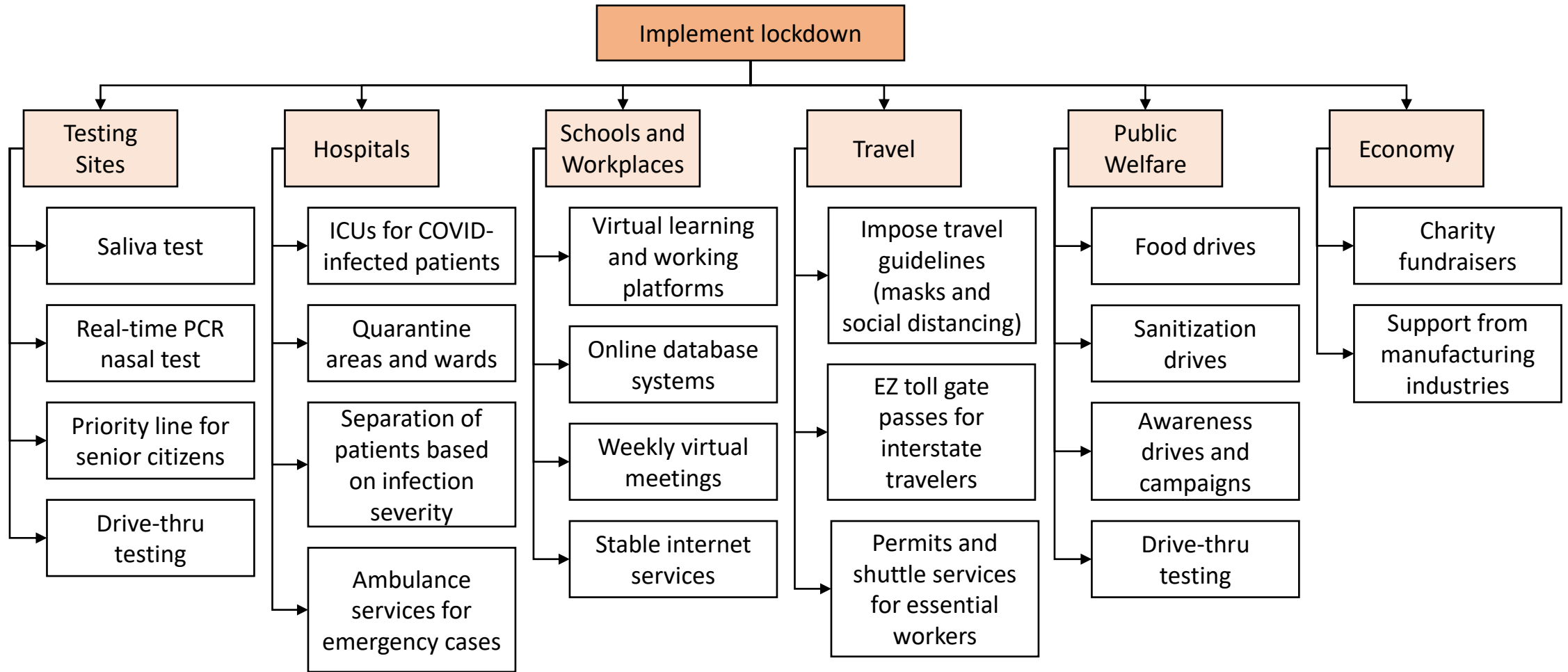
Sl. No.	Healthcare	Public Welfare & Admin	Education	Food & Essentil Amenities	Production & Other Services
1	Stockpile of Equipments	Mandate for Social Distancing	Online Learning Platforms	Stockpile of food	Auditing Quality Assurance
2	Medical Volunteers	Mandate for masks	Faculty Training	Food drives	Online work platforms
3	Makeshift Hospitals	Permits for essential workers	Library Database		Increase production
4	Toll-free Helpline	Sanitisation Drives			Promoting allies for heathcare
5		Travel Restrictions			
6		Stimulus Packages			
7		Quarantine Centers			
8		Admin Volunteers			



Process Flow Chart



Organizational Flow Chart



COPQ Chart

COPQ	Internal Problems	External Problems	Appraisal	Prevention
Testing site	<ul style="list-style-type: none"> ➤ Less space ➤ Shortage of testing equipment 	<ul style="list-style-type: none"> ➤ Inclement weather ➤ Location ➤ Protests ➤ Long wait lines 	<ul style="list-style-type: none"> ➤ Check weather ➤ Ensure adequate supply of testing equipment 	<ul style="list-style-type: none"> ➤ Use permanent building ➤ Police presence ➤ Update computers
Confirmed cases	<ul style="list-style-type: none"> ➤ Backlog in reporting positive cases 	<ul style="list-style-type: none"> ➤ Delayed update which could mislead people 	<ul style="list-style-type: none"> ➤ High-performance IT generals for keeping database updated 	<ul style="list-style-type: none"> ➤ Compliance with lockdown guidelines
Hospitals	<ul style="list-style-type: none"> ➤ Shortage of medical equipment and workers ➤ Shortage of beds ➤ Untrained medical workers 	<ul style="list-style-type: none"> ➤ More deaths ➤ Improper treatment for patients 	<ul style="list-style-type: none"> ➤ Construction of makeshift quarantine centers ➤ Lending support from non-medical companies 	<ul style="list-style-type: none"> ➤ Proper training for medical volunteers and hospital staff
Schools and workplaces	<ul style="list-style-type: none"> ➤ Shift to entirely online platforms ➤ Maintaining attendance roster online ➤ Unstable internet connection 	<ul style="list-style-type: none"> ➤ Lack of understanding for students ➤ No interaction outside “bubble” 	<ul style="list-style-type: none"> ➤ Setting up online database (e.g. online library) ➤ Host weekly inter-department sessions for interactions 	<ul style="list-style-type: none"> ➤ Ensure proper internet connection ➤ Free access to recorded online sessions
Travel restrictions	<ul style="list-style-type: none"> ➤ No transportation in case of emergency ➤ Shortage of daily household essentials 	<ul style="list-style-type: none"> ➤ Economic shutdown on businesses and transportation ➤ Delayed deliveries of needed supplies and services 	<ul style="list-style-type: none"> ➤ Lower operation frequency and occupancy in public transportation ➤ Host weekly food drives 	<ul style="list-style-type: none"> ➤ Allow shuttle services for medical emergencies ➤ Allow more food delivery services to homes ➤ Have non-medical volunteers help with delivery

Assessment

People and organizations to interview

- World Health Organization (WHO) / National Institute of Health (NIH)
- Center of Disease Control (CDC)
- U.S. Department of Health and Human Services
- U.S. Department of Homeland Security
- U.S. Department of Transportation
- U.S. Department of the Treasury
- State governor
- Chiefs of city police departments

Assessment

Questions to ask

➤ **World Health Organization (WHO) / National Institute of Health (NIH)**

- What are the age groups and the pre-medical conditions that are more susceptible to the virus?
- What is the severity of the virus in terms of age groups?
- How quickly does the virus spread among people?
- What are the diagnosis methods for this virus?

➤ **Center of Disease Control (CDC)**

- What measures are you taking/what is the general guideline to control this virus?

➤ **U.S. Department of Health and Human Services**

- How many rooms and places are in the hospitals to care for COVID-infected patients?
- How many medical workers and volunteers have experience and/or are willing to resolve this pandemic?
- How will you keep track of usage of goods and services and increase demand in a particular region?

Assessment

Questions to ask

➤ **U.S. Department of Homeland Security**

- What is your plan in helping foreign travelers reach their home countries?
- How will you help citizens prepare and make things easier to sustain during the pandemic?
- What percentage of trade would be affected by the lockdown?

➤ **U.S. Department of Transportation**

- What are the interstate traveling guidelines during the pandemic?
- How would a potential lockdown impact public transportation?
- What is an effective safety plan to get essential workers back into the workplace?

➤ **U.S. Department of the Treasury**

- What is the anticipated financial loss associated with the pandemic?
- How are you going to convince the government to pass a financial stimulus package?

Assessment

Questions to ask

➤ **State governor**

- How are you going to handle interdepartmental operations effectively?

➤ **Chiefs of city police departments**

- How many officials have you got to monitor different COVID-testing sites if there are excess amount of appointees?

Assessment

Answers to questions

➤ **World Health Organization (WHO) / National Institute of Health (NIH)**

- Age groups above 60 with any chronic problems are more susceptible to the virus.
- The severity of the virus is higher in people in old-age groups and/or with weak immune systems will be affected quickly.
- The virus spreads among people through hand-to-hand contact and respirating airborne particles from infected people who are coughing or sneezing.
- Diagnosis methods for COVID include saliva testing and real-time PCR nasal testing.

➤ **Center of Disease Control (CDC)**

- Some ways to control the spread of the virus include social distancing guidelines, masks mandate, hand sanitizers, and free sanitation drives.

➤ **U.S. Department of Health and Human Services**

- There are not enough rooms and space in hospitals to care for COVID-infected patients, but they are working on creating makeshift hospitals to alleviate this problem.
- There are 600 medical workers and volunteers who have experience and/or are willing to resolve this pandemic. Inexperienced medical volunteers will be trained by professionals before working to bring an end to the pandemic.
- The department will analyze historical data on usage of goods and services in a particular region in order to attempt maintaining excess inventory of needed supplies.

Assessment

Answers to questions

➤ **U.S. Department of Homeland Security**

- The department will help foreign travelers be in constant communication with foreign embassies.
- The department will undertake awareness campaigns to make people aware of global situation.
- The department believes that high demand with low supply of needed goods will inflate the prices of these goods affecting trade by around 20-30%.

➤ **U.S. Department of Transportation**

- Domestic travelers should immediately get tested and quarantine after reaching destination.
- Frequency of operation would be reduced. Travelers would be required to wear a facemask before boarding. There would be a lower limit in number of onboard travelers.
- A possible solution would be providing sanitized shuttle services to and from the workplace.

➤ **U.S. Department of the Treasury**

- To overcome the financial aspects associated with the pandemic, the department will borrow loans from other countries to work on expenses and host charity fundraisers.
- The department will provide data on employment layoffs and financial analysis on daily expenditures by people.

Assessment

Answers to questions

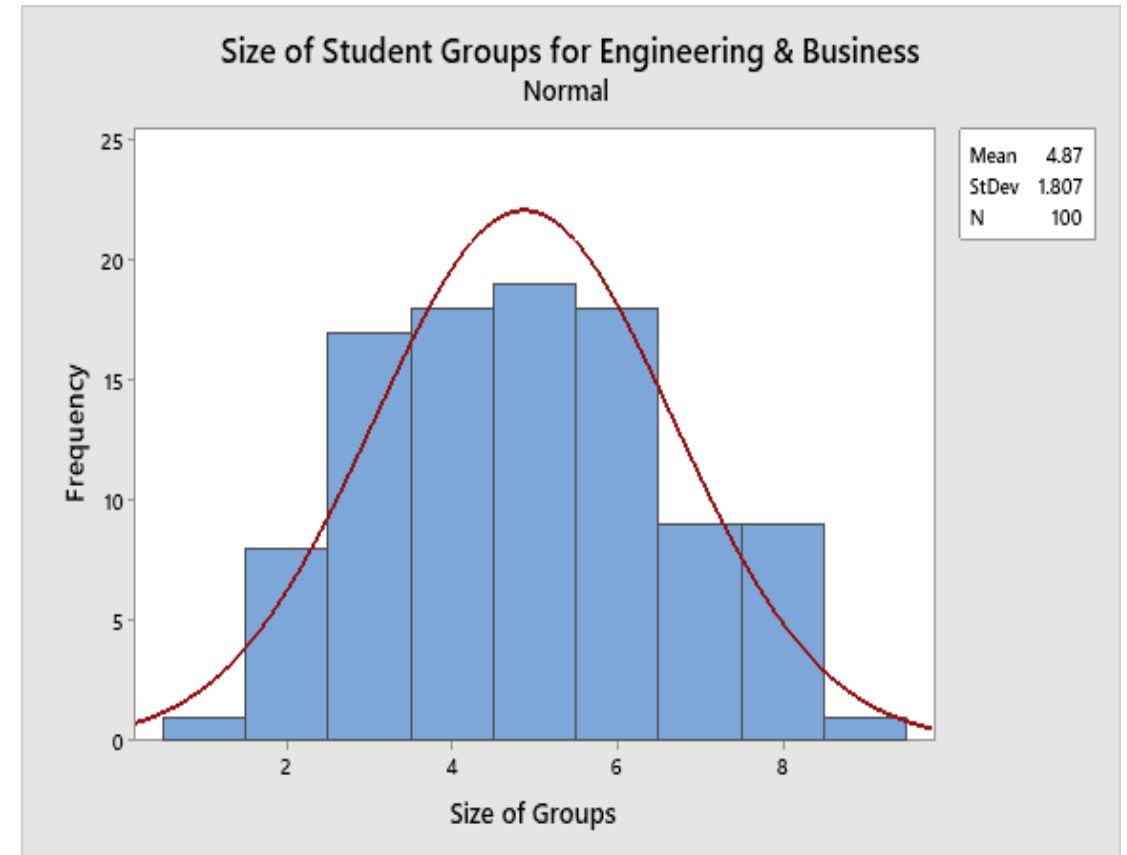
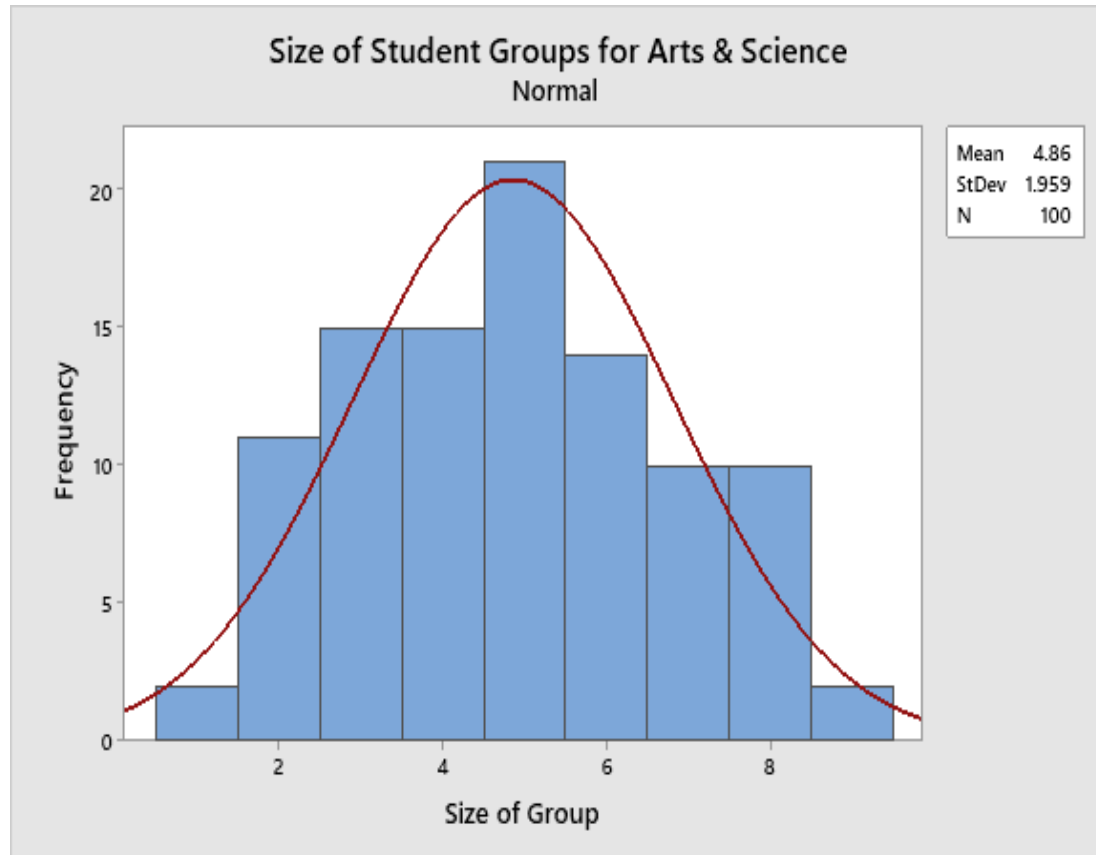
➤ **State governor**

- He will appoint the best people with expertise in their fields and experience in handling such situations.

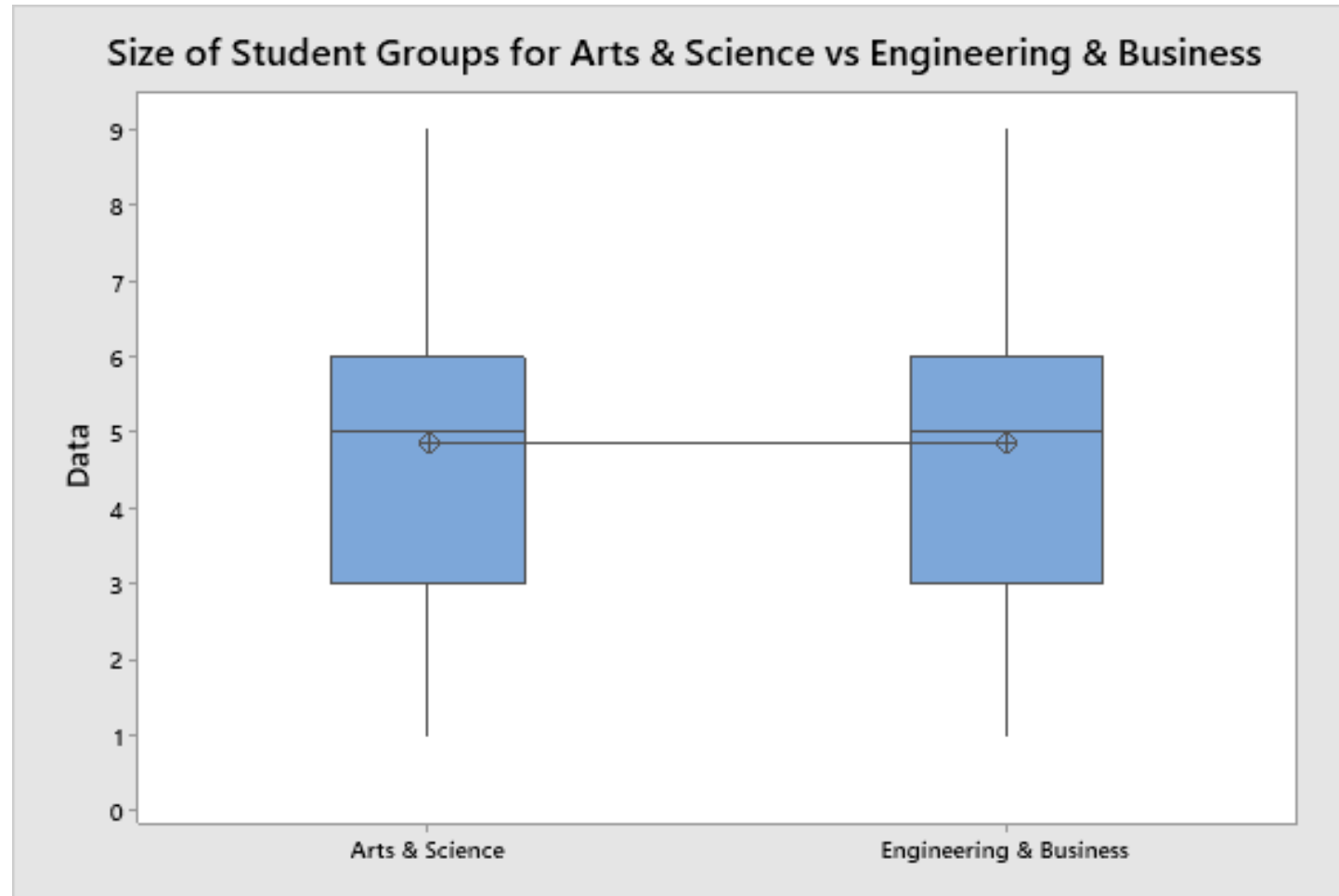
➤ **Chiefs of city police departments**

- They will have 400 police officials monitoring different sites. There should be COVID-proofing of testing centers with social distance guidelines and safety measures.

Analysis



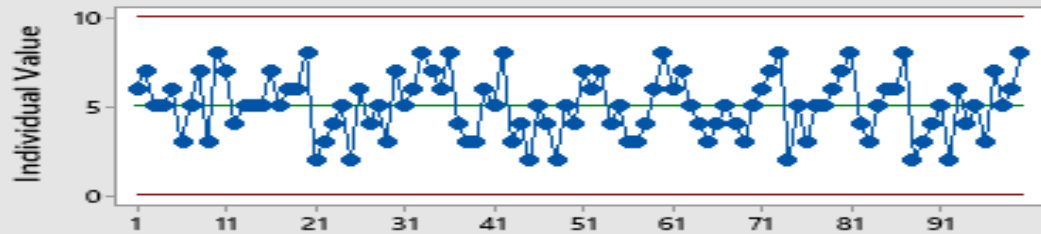
Analysis



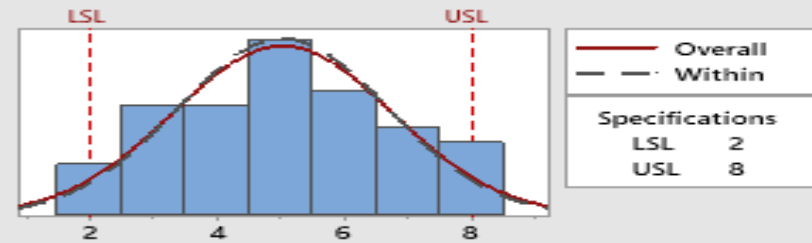
Analysis

Size of Student Groups of Arts & Science post lockdown

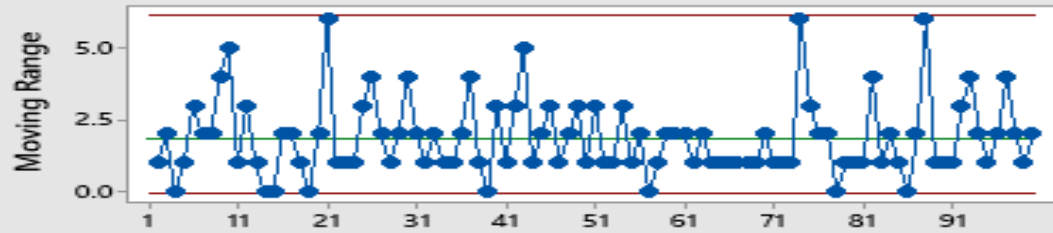
I Chart



Capability Histogram

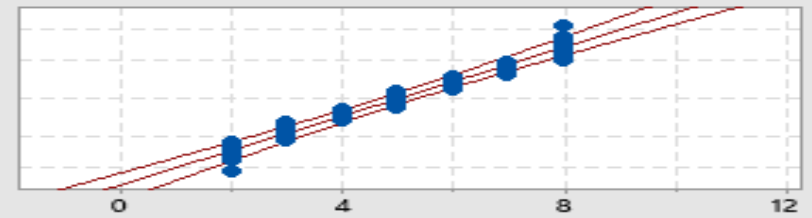


Moving Range Chart

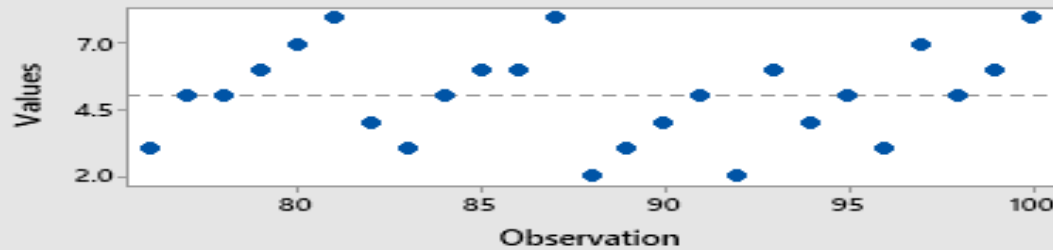


Normal Prob Plot

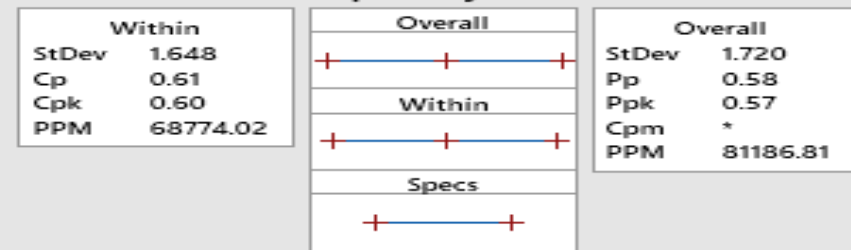
AD: 1.719, P: < 0.005



Last 25 Observations



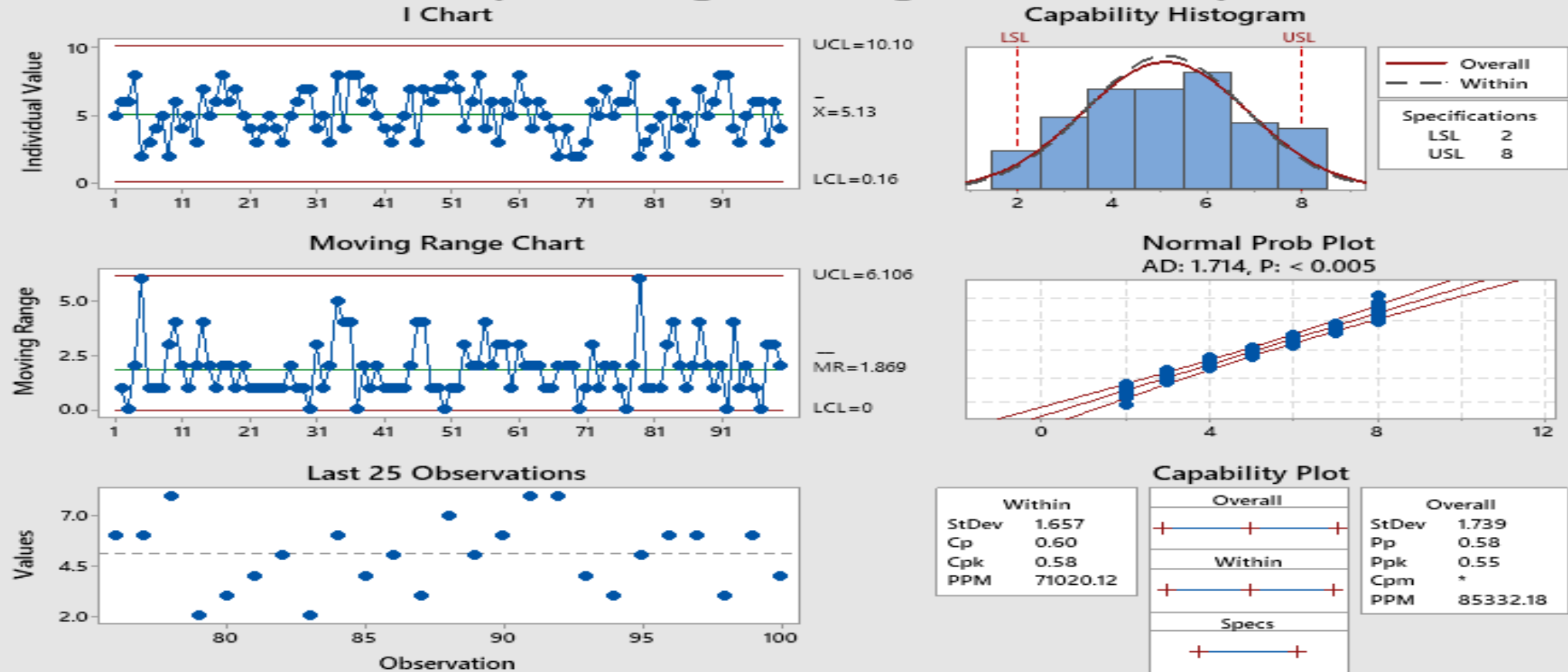
Capability Plot



The actual process spread is represented by 6 sigma.

Analysis

Size of Student Groups of Engineering & Business post lockdown

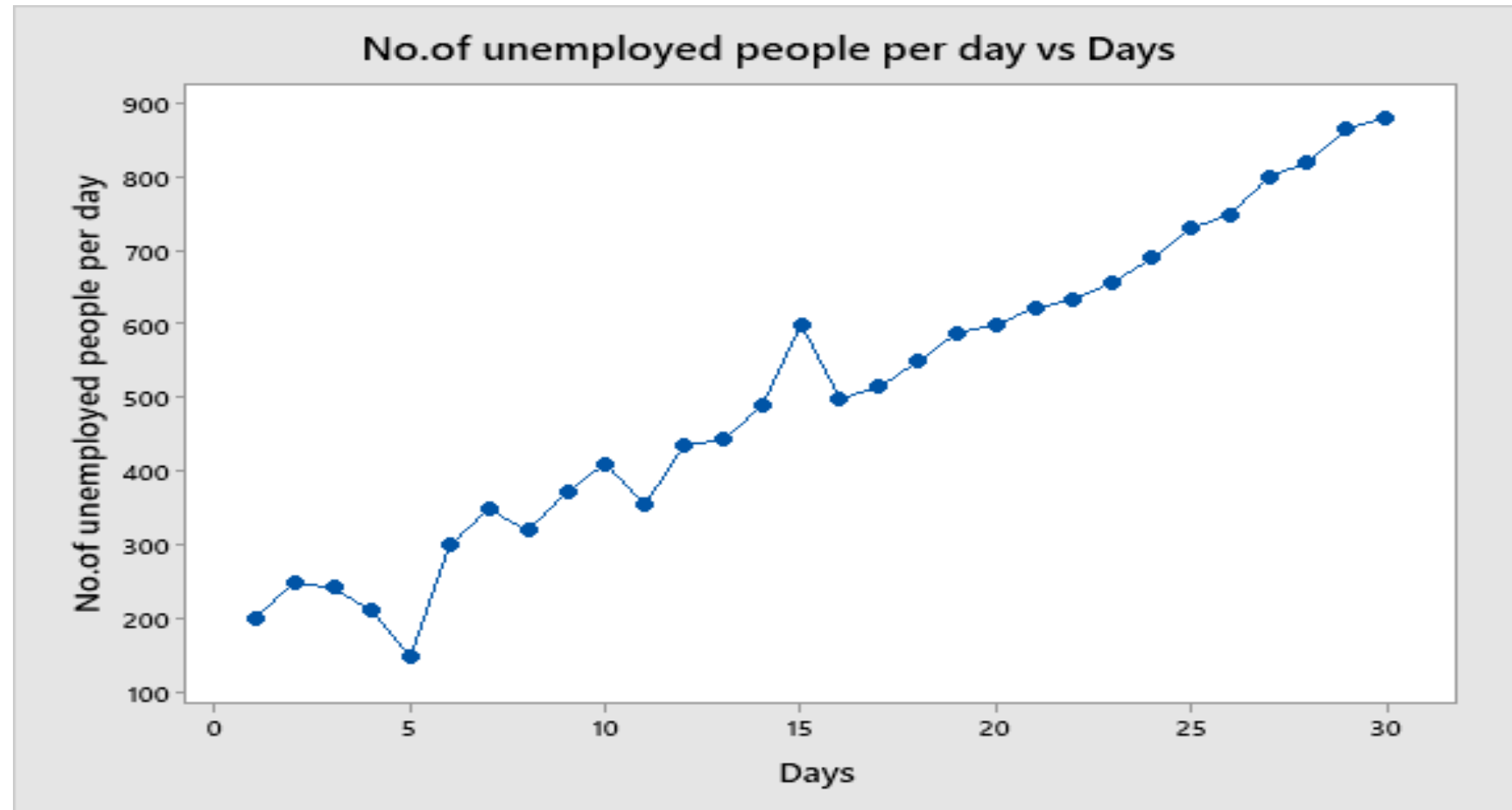


The actual process spread is represented by 6 sigma.

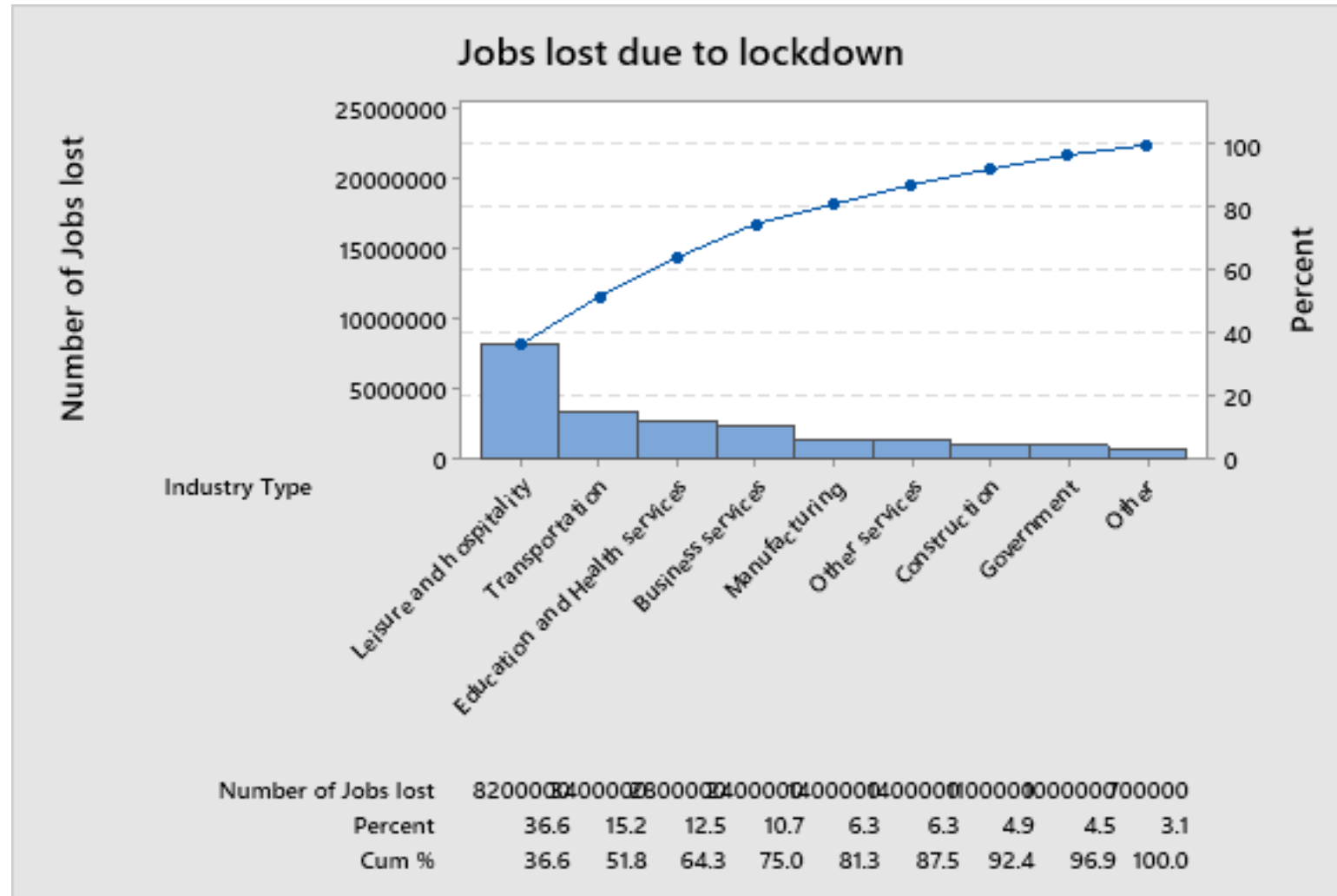
Analysis



Analysis



Analysis



Results from Analysis

- Student groups of Arts & Science and Engineering & Business are complying with the social distancing guidelines.
- Demand for basic goods after lockdown is pretty vague and much higher than prior to lockdown.
- Unemployment follows a positive trend during a lockdown.
- Most number of jobs lost due to lockdown include leisure and hospitality, transportation, education and health services, business services, and manufacturing.

Thank You!

Any questions?