Please complete steps one through ten of the case-study procedure on the Volkswagen case.

As with all your work in this class, the case-study homework should be written in your own words, meaning you should summarize rather than simply copy from the text. If you do use words and phrases from the text, however, then be sure to include any words or phrases in quotation marks.

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# case-study procedure on the Volkswagen case

1. List as many ethical issues as possible - remember, ethical issues concern what individuals/organizations should or should not have done/might or might not have done, and are posed in the form of a question - providing a brief explanation for why the issue is ethical in nature.
   * Should Volkswagen install “defeat devices” to trick on tests to measure nitrogen oxide emit from tha car ?
     + This software will change the output of the fixed emissions tests.
   * Should Volkswagen produced doctored results on tests to measure nitrogen oxide emit from tha car ?
     + If they do, the measured result by the fixed emissions tests will be good looking, but It will cause safety latent danger.
   * Should International Council on Clean Transportation surpport engineers to check whether “Volkswagen was cheating on US vehicle emission tests ?”
     + If they don't surpport to this research, what Volkswagen did may not be found.
   * Should the CEO of Volkswagen pretends that he doesn't know "the events of the past few days ?"
     + Every one knew that he must know that. But if he admit that, he will be against the law.
   * Should Volkswagen claim that “higher nitrogen oxide emissions” were caused by “technical glitches ?”
     + By saying that, he may escape the blame, but if what he did were exposured, he'll be in danger.
   * Should German regulators only "focus on how to fix the problem of the vehicles ?"
     + If they don't, they must punish Volkswagen, which is not acceptable by them. If they do, they will lose their credibility.
   * Should Verband der Automobilindustrie remained silent relatively ?
     + If they don't they must admit their fault, which is not acceptable by them, but if they do, they will lose their credibility.
   * Should Kraftfahrt-Bundesamt support Volkswagen publicly?
     + If they don't Volkswagen may be punished. If they do, they will lose their credibility.
2. Choose the most important one - or reformulate a new issue that encapsulates multiple issues from step one - providing a brief (one- to two-sentence) explanation for why this issue is the most important.

* "Should Volkswagen produced doctored results on tests to measure nitrogen oxide emit from tha car" is the most important one.
* Though this may be one of the "most effective way" to decrease the nitrogen oxide emit from tha car, but it take risks. Volkswagen had a reputation for assemble reliable cars, supporting Germany engineering reputation. If they trick on tests to measure nitrogen oxide emit from tha car, the outcome of the measurement will be good looking, but it take risks. If what they did were found by others, they will lose their credibility, and Volkswagen's stock will drop a lot.

1. List facts that would help to resolve the most important issue/answer the question - paying special attention to material, individual, and organizational facts - as well as identifying any relevant missing facts.

### Facts provided

* + Hazardous emissions emitted from the Volkswagen cars with “defeat devices” were lower by the fixed emissions tests than on the road.
  + Volkswagen's stock dropped to 50% since Mar. 2015 ~ 2016
  + Volkswagen cars "responsible for nearly 1 million tonnes of air pollution every year."
  + The Volkswagen Group of America returned three awards from Cars.com.
  + Volkswagen had been honored by produce good vehicles.
  + Volkswagen had supported the national engineering reputation of Germany.
  + Volkswagen had have honest and diligent workers.
  + When driving on the road, the cars from Volkswagen produced “emissions of nitrogen oxide up to nine times EPA's standard”
  + The trick software had been installed in millions of cars from Volkswagen.
  + The emission problems of Volkswagen cars began since 2012.
  + West Virginia University's engineers determined “Volkswagen was cheating on US vehicle emission tests”
  + German regulators only "focus on how to fix the problem of the vehicles."
  + Verband der Automobilindustrie remained silent relatively.
  + Kraftfahrt-Bundesamt support Volkswagen publicly.
  + Michael Horn state that Volkswagen “totally screwed up and admitting the fault.”
  + Should Michael Horn state that Volkswagen “totally screwed up and admitting the fault?”

### Facts not provided but relevant

* + Did the employees of Volkswagen knew what the caompany did?
  + Do nitrogen oxide emit from tha car is dangerous to humanbeings?
  + What made Volkswagen to made the decision to produce cars with “defeat devices”?

1. Make reasonable assumptions regarding missing facts, including brief justifications for your assumptions.

### Making Reasonable Assumptions for facts not provided but relevant

* + Did the employees of Volkswagen knew what the company did?
    - 如果知道，应该有人阻止。如果没有，为什么？如果有，为什么到现在才爆出来？
    - If they know this issue that Volkswagen sell cars with discharge issues and it will cause safety latent danger, they should talk to their employer, Volkswagen or public what they knows directly to the public, making a statement to the media, such that the public will bot be hurt. But they didn't do it for at least two year. It may because they need their job and Volkswagen gave them many bonus such that they were contrary to conscience. If there really were some people who did report this to media, why the secret were kept for so long time?
  + Do nitrogen oxide emit from tha car is dangerous to humanbeings?
    - 应该有害，这样才引起群众关注。
    - Nitrogen oxide emit from tha car should be dangerous to humanbeings. If nitrogen oxide emit from tha car is just like carbon dioxide and cause no damage to the environment, there should be no such amount of people who make their eyes so close to this event.
  + What made Volkswagen to made the decision to produce cars with “defeat devices”?
    - 作为一个有责任心的大公司，为什么这么冒险？是否知道被爆出的后果？
    - As one of the best company in the car industry, Volkswagen were suffer a lot of pressure. If there were not as good as people thought or there were any other car company which invent cars with higher performance, Volkswagen's position will not be guaranteed. So they want to manufacturing gimmucks without strength.

1. Clarify the use of any potentially ambiguous terminology you've used so far - for example, technical or value terms, like "safe," "good," and "responsible."
   * trick: cheat on the tests to measure nitrogen oxide emit from tha car.
   * defeat devices: devices that can trick inspectors.
   * clean program: program installed to trick tests measuring nitrogen oxide emissions from Volkswagen diesel automobiles.
   * technical glitches: program installed to trick tests is not programed to trick, it's just glitches that caused this issue.
2. Identify ethical principles that would be relevant for resolving the issue under consideration, starting with the principles for ethical global engineering outlined in chapter four, providing a very brief explanation of why they are relevant. If these principles conflict, then be sure to prioritize them, explaining which ones would be more/less important and why. If you think additional principles apply, then list these as well.

* Since Volkswagen is a big company and its cars will influence many families, which means responsibilities related to engineers worked for Volkswagen are strongly connected. Referring to the list in Appendix 1, basic ethical principles include principles on related to public safety (1), human rights (2), environmental protection (3) and truthful disclosure (6).
* While does these questions are related to the Volkswagen? This cars were said to be clean and environmental helpful. And Volkswagen has the duty to make sure what they made are reliable. Which means it's Volkswagen which should make this prodeuct safety. According to ethical principles for employees, engineers should "obey all legitimate, job-related directives"(1) and "avoid actions that harm the corporation in acting on behalf of the organization"(4), but there is a conflict. As right for enginner as employees says, they should "blow the whistle (externally or internally) if, in their professional judgments, the physical safety of the public will be endangered as a result of their failures to act" (7) and "inform the public of engineering decisions that have the potential to seriously harm the physical welfare of the public"(9).
* Like the case of ehical analyses, engineers in Volkswagen should make his decision on his knowledge and take his responsibilities, and Volkswagen should bear public responsibility.

1. Review the process thus far, making sure you have listed all relevant facts, as well as clarified any remaining potentially ambiguous terminology.

* It's not hard to find that Volkswagen cheat on the tests to measure nitrogen oxide emit from tha car, and it's not technical glitches as Volkswagen said. As one of the best company in the car industry, Volkswagen were suffer a lot of pressure. If there were not perfect or there were some other car company who assembles cars with higher performance, Volkswagen's position will be challenged. Moreover, engineers in Volkswagen didn't report this to media or media didn't report this to public. There may be so many reasons for that.

1. Based on the previous steps, resolve the issue under consideration, answering the question you identified in step 2. Additionally, give a brief justification for your answer.

* As engineers at Volkswagen, they should have more actions to avoid public being hurt by their prodeuct. While they also have a duty of obey the instruction from their employer, Volkswagen, but that duty would not include conﬁdentiality regarding illegal activities.
* If the company insist to sell these cars with discharge issues, then Volkswagen is violating some organizational ethical principles, including principles (1), (3)and (6); Further more, Kitten also violate principles on related to public safety (1), human rights (2), and truthful disclosure (6).
* What should engineers do? They should take action to protect the public because they have this obligation. What should Volkswagen do? Volkswagen has an obligation to not make the public hurt.
* Engineers could talk to their employer, Volkswagen or public what they knows directly to the public, making a statement to the media. Both of these actions could make engineers in trouble because they may be thought to be employees that not official loyal to their sovereign.

1. Identify practical constraints, listing any that could reasonably be said to excuse either individuals or organizations from the answer given.

* Practical constraints that may influence engineers is physical threats against their lives, the nature of corporate retaliation. If they are fired, their family may suffer. And as employees, they may be thought to be not official loyal to their sovereign. So the ethical requirement for they don't change, which means he may not to act as a pure engineer.
* Other types of practical constraints that we should cinsider is Volkswagen's pressure. As one of the best company in the car industry, Volkswagen were suffer a lot of pressure. If there were not as good as people thought or there were any other car company which invent cars with higher performance, Volkswagen's position will not be guaranteed. So they want to manufacturing gimmucks without strength.

1. Finally, based on the previous steps of the case study analysis, explain how ethical problems might have been avoided in the first place.

* Engineers can take themselves away from the big trouble that this product may pollutes the environment and hurt the public. If Volkswagen sell cars with discharge issues, the measured result by the fixed emissions tests will be good looking, but It will cause safety latent danger. If Volkswagen don't, cars assembled by this company may lose the war with other cars industries company. But this is just got away with an ethical duty. This escapism is not a good way to avoid ethical problem. There is a better way to avoid this ethical problem. Volkswagen can strengthen research and development, and develope cars with low pollution instead of with a "defeat devices" or "clean program", Volkswagen can ensure its work this way and avoiding Ethical Problems.