



Homework 6.1

Question 1

1/1 point (graded)

An investor has a substantial amount of funds, and is trying to figure out how to invest it so as to maximize the value of the investment portfolio next year. For simplicity, assume there are only two investment choices: bank savings account, and stock market. The investor is considering using optimization to solve this problem. Which of the following describes the decision variables in this optimization model?

- ☒ How much money to invest in bank savings, and how much to invest in the stock market. ✓
- ☐ The calculation that describes the value of the investment portfolio next year, based on how much is invested in each investment choice.
- ☐ The requirement that the total amount invested in the two investment choices cannot exceed the total amount of investible funds.
- ☐ The analytical methodology that finds the optimal solution to this investment problem.

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You have used 2 of 2 attempts

Question 2

1/1 point (graded)



Continuing with Question 1, which of the following describes a constraint in this optimization model?

- ☐ How much money to invest in bank savings, and how much to invest in the stock market.
- ☐ The calculation that describes the value of the investment portfolio next year, based on how much is invested in each investment choice.
- ☒ The requirement that the total amount invested in the two investment choices cannot exceed the total amount of investible funds. ✓
- ☐ The analytical methodology that finds the optimal solution to this investment problem.

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Question 3

1/1 point (graded)



Which of the following is not a potential advantage of building a computer simulation model of a business problem to solve a prescriptive analytics problem?

- ☐ The simulation model can be much cheaper to build than testing the ideas in the real business.
- ☒ Even if we don't understand the full complexity of a business scenario, we can build a computer simulation model that is guaranteed to give accurate results. ✓
- ☐ Simulation models provide a low-risk framework to test business ideas, because even if the scenarios play out badly, they don't affect the real business.
- ☐ Simulation models can sometimes be used to model complex systems that do not have the nice structures that are typically necessary for an optimization model.

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Question 4

1/1 point (graded)



Which of the following is/are potential uses for artificial intelligence (AI) in business?

- ☐ Automating customer service, by replacing customer service agents with AI computer programs that can chat interactively with the customer.
- ☐ Automating management decisions, such as observing demand information and using that to set production and pricing levels.
- ☐ Embedding AI in physical systems such as manufacturing or distribution facilities, to automate the execution and management of physical processes.
- ☒ All of the above. ✓

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Question 5

1/1 point (graded)



A company is trying to decide its advertising strategy: how much money to spend on advertising in different options, such as: different TV channels, internet sites, social media platforms, print publications, etc. It is considering using the multi-armed bandit framework to figure out its optimal advertising strategy. Which of the following investment strategies, if being followed by the company, is an example of exploration?

- ☐ Advertising on multiple different options, knowing that it is a low-risk strategy because at least one of those options is likely to be successful.
- ☒ Advertising on multiple different options and collecting data on the effectiveness of each option. ✓
- ☐ Advertising on a single option (or small number of options) because data from past advertising has indicated that those options are more successful.
- ☐ Advertising on a single option (or small number of options) because those options are the lowest cost.

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Question 6

1/1 point (graded)



Continuing with Question 6 above, which of the following investment strategies, if being followed by the company, is an example of exploitation?

- ☐ Advertising on multiple different options, knowing that it is a low-risk strategy because at least one of those options is likely to be successful.
- ☐ Advertising on multiple different options and collecting data on the effectiveness of each option.
- ☒ Advertising on a single option (or small number of options) because data from past advertising has indicated that those options are more successful. ✓
- ☐ Advertising on a single option (or small number of options) because those options are the lowest cost.

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Question 7

1/1 point (graded)



A large company has received complaints that it treats female employees and male employees differently in an unfair manner (e.g. female employees are often paid less for the same work; male employees are often asked to stay late). In an attempt to fix this, the firm develops an analytical tool that uses past data to predict the likelihood of success of individual employees on specific tasks, and use that to determine pay and requests to work late. The analytical tool uses past data, where performance on tasks was determined by ratings provided by the employees' bosses. Which of the following is a potential problem with this approach?

- ☒ The past data may be biased because it uses potentially biased ratings provided by the employee's bosses. ✓
- ☐ Analytical models cannot be built for situations where predicting human behavior is involved.
- ☐ Predicting the "likelihood of success" cannot possibly be done by an analytical model; it can only be done by humans.
- ☐ This approach is an incorrect use of descriptive analytics because it does not include and visual tools.

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Question 8

1/1 point (graded)



As AI and automation take over a greater amount of managerial tasks in an organization, which of the following critical skills is it important for the human managers to have?

- ☐ The ability to do routine tasks repetitively, in a way that is cost-efficient for the company's profits.
- ☐ The ability to do physically demanding tasks, where humans have a significant efficiency advantage compared to automated solutions.
- ☒ The ability to quickly and effectively take over in a situation where the automation fails unexpectedly. ✓
- ☐ The ability to clearly communicate with the automation system, for example by using the same programming language as is used for programming the automation system.

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Question 9

1/1 point (graded)

Which of the following activities in a job is generally considered most automatable, in today's technology?

- ☐ Managing and interfacing with other humans.
- ☐ Deploying specialized expertise of relatively uncommon situations.
- ☐ Unpredictable and variable physical tasks.
- ☒ Predictable and routine physical tasks. ✓



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