Section-Based – Guidelines for Responsible AI (AIF-C01)

!!BEST OF LUCK!!

Ques 1: A machine learning specialist is developing an ML model to predict customer churn for a subscription-based service using Amazon SageMaker. The specialist is concerned about potential biases in the training data that might affect the model's performance. The specialist must also ensure that the model's predictions are transparent and explainable to stakeholders.

Which AWS SageMaker capabilities help to meet these requirements?

   a) Amazon SageMaker JumpStart

   b) Amazon SageMaker Ground Truth

   c) Amazon SageMaker Clarify

   d) Amazon SageMaker Data Wrangler

Ans: Amazon SageMaker Clarify

Ques 2: A financial organization is planning to integrate generative artificial intelligence (generative AI) services into its workflow to improve customer support with natural language processing capabilities. The company is keen on ensuring that its AI models are transparent, fair, and accountable. They are looking for resources to understand the ethical implications and responsible use of AI services.

Which AWS service would be appropriate for this task?

   a) Amazon Comprehend

   b) AWS AI Service Cards

   c) AWS Marketplace

   d) Amazon Polly

Ans: AWS AI Service Cards

Ques 3: An organization plans to implement an artificial intelligence (AI) system to assess and recommend individuals for eligibility in various public health initiatives and social welfare programs. The system analyzes data from multiple sources, including census data, employment records, and financial information. The organization needs to streamline the application process and ensure that eligible individuals receive the support they need.

Which core dimension of responsible AI should the organization prioritize to ensure that the machine learning model aligns with ethical principles and provides clarity on how decisions are made?

a) Safety

b) Fairness

c) Transparency

d) Privacy and Security

Ans: Transparency

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Concerns about data quality and model trustworthiness have been raised. To address these, which TWO core dimensions of responsible AI should the organization focus on? (Select TWO)

a) Safety

b) Veracity and Robustness

c) Explainability

d) Privacy and Security

e) Controllability

Ans: Veracity and Robustness & Explainability

Ques 5: A company is incorporating different generative AI technologies to enhance its internal operations and customer interactions. The company must pair each AI application with the appropriate responsible AI principle to ensure ethical integration and alignment with responsible AI practices.

Select the responsible AI principle that best matches each description of AI application practices. (Select THREE.)

The application ensures that customer support responses are unbiased and fair, avoiding any form of discrimination or prejudice.

- a) Transparency
- b) Controllability
- c) Fairness
- **d)** Safety

Ans: Fairness

The company openly shares information about the AI system's overall functioning, data sources, and development process used for generating new product design recommendations:

- a) Transparency
- b) Explainability
- c) Controllability
- **d)** Privacy and security

Ans: Transparency

The application is designed to prevent unauthorized access to sensitive information while generating personalized customer recommendations:

- a) Explainability
- b) Safety
- c) Controllability
- d) Privacy and security

Ans: Privacy and security

Ques 6: A company is planning to build a chatbot to analyze customer reviews using large language models (LLMs). The company is evaluating various LLMs to find the one that best predicts whether a review is positive, negative, or neutral, using fairness metrics to ensure unbiased predictions.

The company also wants to ensure the solution removes sensitive information before processing. This step is crucial for preventing unintended consequences and complying with privacy regulations.

Which of the following options will meet the requirements? (Select TWO.)

a) Amazon Lex

b) Amazon Bedrock Guardrails

c) Amazon Comprehend

d) Amazon SageMaker AI Ground Truth

e) Amazon Bedrock Model Evaluation

Ans: Amazon Bedrock Guardrails & Amazon Bedrock Model Evaluation

Ques 7: A technology company is exploring the use of generative AI models, such as large language models (LLMs), for various applications. However, the company is committed to ensuring that these models are deployed in accordance with the principles of responsible AI.

Which of the following are significant challenges of generative AI that need to be considered by the company? (Select THREE)

a) Privacy and security

b) Hallucinations

c) Explainability and transparency

d) Intellectual property

e) Computational resources

f) Toxicity

Ans: Hallucinations & Intellectual property & Toxicity

Ques 8: A data scientist is evaluating a machine learning model and notices that it performs well on the training data but poorly on the test data.

Which combination of bias and variance is likely causing this issue?

a) Low bias and low variance.

b) Increased bias and increased variability

c) Increased bias and less variance.

d) Low bias but higher variability.

Ans: Low bias but higher variability.

Ques 9: A team is working on a machine learning project. They have developed a model for predicting whether an email is spam or not. Before deploying the model, the team wants to ensure fairness and transparency.

Which options would be the most suitable for this use case?

a) Amazon SageMaker Clarify

b) Amazon Comprehend

c) Amazon SageMaker Ground Truth

d) Amazon Personalize

Ans: Amazon SageMaker Clarify

Ques 10: A healthcare company is developing an AI-driven system to assist doctors with medical diagnoses based on patient data. The system must comply with HIPAA regulations and follow responsible AI principles to prevent bias and ensure data privacy.

Which actions should the company take to align with responsible AI principles while developing the diagnostic system? (Select TWO.)

a) Obfuscate sensitive patient information before model training

b) Use third-party pre-trained models without modification

c) Perform regular audits

d) Use historical medical records without preprocessing

e) Exclude patients with rare conditions to improve model accuracy

Ans: Obfuscate sensitive patient information before model training & Perform regular audits

Ques 11: An ML engineer is building large language models (LLMs) for a chatbot application. During development, the engineer wants to ensure that the LLMs don't exhibit any unintended bias.

Which options would be the most suitable for this use case?

a) Use Amazon SageMaker Clarify to assess and mitigate bias.

b) Fine-tune the model using additional labeled data to improve fairness.

c) Use AWS AI Service Cards to visualize decision boundaries and identify potential bias.

d) Analyze text data with Amazon Comprehend to identify potential bias.

Ans: Use Amazon SageMaker Clarify to assess and mitigate bias.

Ques 12: A content creator uses generative AI to produce marketing material that closely resembles existing text without proper attribution.

What challenges of generative AI does this situation highlight?

a) Disruption of the nature of work

b) Intellectual Property

c) Hallucinations

d) Toxicity

Ans: Intellectual Property

Ques 13: A finance company uses Amazon Bedrock to deploy a generative AI-based chatbot that provides personalized financial advice and answers related queries. As part of its governance framework outlined in the AWS Generative AI Security Scoping Matrix, the company needs a solution to control and evaluate the chatbot's generated content to ensure accuracy, appropriateness, and adherence to regulatory standards.

Which AWS tool will help ensure that the chatbot's advice meets accuracy and regulatory compliance standards?

a) Amazon Lex

b) Bedrock Agents

c) Amazon Comprehend

d) Guardrails for Bedrock

Ans: Guardrails for Bedrock

Ques 14: Which of the following can Amazon SageMaker Clarify perform? (Select TWO.)

    a) Generate synthetic data to improve model training

    b) Detect bias in pre-training data

    c) Identify bias in post-training data during or after model training

    d) Perform data augmentation to increase the size of the training dataset

    e) Perform automatic hyperparameter optimization to improve model accuracy

Ans: Detect bias in pre-training data & Identify bias in post-training data during or after model training

Ques 15: A team is working with a Large Language Model (LLM) to generate responses for customer support queries. However, it is observed that the model occasionally provides answers that are factually incorrect or nonsensical.

What issue is the model experiencing?

    a) Model drift

    b) Underfitting

    c) Hallucination

    d) Data augmentation

Ans: Hallucination