Kafka Chat Application with C# - Code & Output

1. KafkaChatProducer.cs

```csharp
using System;
using Confluent.Kafka;

class KafkaChatProducer
{
    static async Task Main(string[] args)
    {
        var config = new ProducerConfig { BootstrapServers = "localhost:9092" };

        using var producer = new ProducerBuilder<Null, string>(config).Build();

        Console.WriteLine("Kafka Chat Producer Started. Type messages to send:");

        while (true)
        {
            string message = Console.ReadLine();
            if (message.ToLower() == "exit") break;

            await producer.ProduceAsync("chat-topic", new Message<Null, string> { Value = message });
            Console.WriteLine($"Sent: {message}");
        }
    }
}
```

2. KafkaChatConsumer.cs

```csharp
using System;
using Confluent.Kafka;

class KafkaChatConsumer
{
    static void Main(string[] args)
    {
        var config = new ConsumerConfig
        {
            BootstrapServers = "localhost:9092",
            GroupId = "chat-consumer-group",
            AutoOffsetReset = AutoOffsetReset.Earliest
        };

        using var consumer = new ConsumerBuilder<Ignore, string>(config).Build();
        consumer.Subscribe("chat-topic");

        Console.WriteLine("Kafka Chat Consumer Started. Waiting for messages...");

        while (true)
```

```
    {
        var cr = consumer.Consume();
        Console.WriteLine($"Received: {cr.Value}");
    }
  }
}
```

3. Sample Output (Terminal Logs)

```
Kafka Chat Producer Started. Type messages to send:
> Hello World
Sent: Hello World
> How are you?
Sent: How are you?
> exit

Kafka Chat Consumer Started. Waiting for messages...
Received: Hello World
Received: How are you?
```