Case 1: REST (20 Marks)

Blue Lagoon Hotels and Resorts is a tourist destination located along the Nanyuki-Meru Road. The facility prides itself as the destination of choice for local and foreign tourists, offering accommodation, nature walks, and gaming to travellers heading toward Mt. Kenya.

Due to growing demand and popularity, the hotel has decided to provide online reservation services through REST web services. Clients can place reservations and obtain confirmation responses containing details of the number of rooms reserved, check-in date, and total amount payable.

Once a customer makes an online booking, he/she receives a confirmation message containing details such as the number of rooms reserved, check-in date, check-out date, total amount payable, reservation reference number, and customer support contact information. The confirmation message serves as proof of reservation and should be presented upon check-in at Blue Lagoon Hotels and Resorts.

Required

Using the illustrations above narrative and sample reservation screen, do the following tasks in groups.

1. Using examples, describe the six constraints defined be Roy Fielding that must be satisfied RESTful web services. Explain why each constraint should be considered when designing the IT solution for Blue Lagoon Hotels and Resorts.
2. Assume that the hotel management has consulted you for guidance on selecting between SOAP and REST web services. Critically evaluate and outline the advantages of adopting REST web services over SOAP.

3. Design a RESTful web service that allows the user to make a hotel reservation at Blue Lagoon Hotels and Resorts. The HTTP request should include appropriate method (e.g., POST), headers, and the JSON payload. The payload must include the following fields: hotel name, number of rooms, check-in date, check-out date, customer name, and the time the reservation request was placed.
4. Once the request has been processed on the server end, the HTTP response should include an appropriate status code, necessary headers (such as Content-Type), and a JSON payload. The JSON payload must contain the following fields: reservation reference number, hotel name, total amount payable, check-in date, check-out date, and estimated confirmation time.

Case 2: SOAP (10 marks)

Temperature conversion web service is a sample web service provided by the **w3schools.com** tutorial web site. The sample web service provides a Web Services Definition Language (WSDL) document available at:
https://www.w3schools.com/xml/tempconvert.asmx?WSDL that defines the location of the service, its methods (or functions) and the request and response documents for those methods. The temperature conversion web service is located at URL https://www.w3schools.com/xml/tempconvert.asmx

Required

1. Use any programming languages to create a Web Service that converts the temperature from Fahrenheit to Celsius, and vice versa. For sample web service code, see https://w3schools.sinsixx.com/webservices/ws_example.asp@output=print.htm
2. Create a SOAP wrapper (message) for sending web service-based messages over the HTTP protocol. The request and response messages should be in XML format. Note that a web services client such as SOAPUI (http://www.soapui.org) is needed to test the service endpoint and obtain metadata from the sample web service.