SSW 555 Agile Methods for Software Development
Homework 2: Use case and User Stories

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1. Identify three features relevant to the driver-free parking feature.

    1) Backup Camera
    2) Lane Detection
    3) Collision Avoidance

2. Describe each of the three features as a use case.

Feature I:

- **Name**: Backup Camera
- **Brief description**: This feature mainly used for safety regulation. The system will activate when car in reverse mode.
- **Actor**: System
- **Basic Flow**: When car is in reverse mode rear-facing camera gives full and clear view of field, which helps to drive easily in reverse mode. It also helps to detect obstacles in blind spots.
- **Alternative Flow**: If cameras are not working properly then the system instructs to the user.

Feature II:

- **Name**: Lane Detection
- **Brief description**: This feature uses cameras and sensors to monitor surroundings and autonomously steer, change lanes and swerve to avoid accidents.
- **Actor:** System

- **Basic Flow**: In this use case it will check if the car is drift out then it will automatically steer back into lane.
- **Alternative Flow**: If lane lines are not easily visible, then the system instructs user to steer back into a lane, while car is drift out.

Feature III:

- **Name**: Collision Avoidance
- **Brief description**: This feature is used forward facing sensors to detect the objects or any other car at decided
- **Actor**: System
- **Basic Flow**: The system uses laser-based sensors to detect imminent collision and increase braking force to compensate for decrease the speed.
- **Alternative Flow**: In this case if sensors are failed to detect then braking force increased by user manually.

3.Describe each of the same features as user stories

Feature I:

- **Title**: Backup Camera
- **Acceptance Test**: Give clear view of field and detects the object.
- **Priority**: 3
- **Story Point**: 2
- **Description**: As a consumer I want the clear view of field while car is in reverse mode to easy operate. Also, it gives an alert while object is detected in path.

Feature II:

- **Title**: Lane Detection
- **Acceptance Test**: Monitor surrounding and autonomously steer, change lanes.
- **Priority**: 2
- **Story Point**: 2
- **Description**: As a customer I want that my car is must stay in lane. Hence, system should be automatically steering back into lane while car is drift out.

Feature III:

- **Title**: Collision Avoidance
- **Acceptance Test**: Detect the collision and apply braking force
- **Priority**: 1
- **Story Point**: 2
- **Description**: As a customer I want this system detects the collision properly and slow down the speed to avoid accidents.

4.Describe the advantages and disadvantages of use cases and user stories for this task?

Use Cases:

- **Advantages:**
  - Use cases is in form of narrative text. Hence, plan of this task is understood by not only technical person but also by non-technical person. So, everyone gives their opinion on it.
  - Also, it includes alternative flow which explains exceptional scenarios by which we get to know about alternative requirements.
  - The use case model can be utilized in test case preparation for this task.
- **Disadvantage:**
  - In use case there is not any plan or description for non-functional task, which is not appropriate for driverless car project.

- It is time consuming process and difficult to generalize from structure.

User Stories:

- **Advantage:**
  - User stories describes the whole plan of the product with final goal.
  - It also helps to developers working on solution to the problems, which helps to get a perfect and desired output.
  - User stories focus on every small need of customer. Hence, it will deliver a highest value.
- **Disadvantage:**
  - It is very difficult to handle complex and multiple functionalities of the task.
  - Language of User stories are informal. Hence, Task developer have to face some difficulties to work.