PART A

(PART A: TO BE REFFERED BY STUDENTS)

Experiment No.04

A.1 Aim:

Design interface for automated ticket vending machine (**ATVM**) for any system

A.2 Prerequisite:

1. Knowledge of GUI and HMI principles.
2. Knowledge of Human Machine Interaction style.

A.3 Outcome:

After successful completion of this experiment students will be able to

1. Visualize and apply HMI Principles to design good GUI.
2. Apply color, vision and memory based principles to design GUI.

A.4 Theory:

- **GUI**
- In computing, a **graphical user interface** (**GUI**, commonly pronounced *gooey*) is a type of user interface that allows users to interact with electronic devices with images (graphics) rather than text commands.

- A GUI represents the information and actions available to a user through graphical icons and visual indicators such as secondary notation, as opposed to text-based interfaces, typed command labels or text navigation.

- The actions are usually performed through direct manipulation of the graphical elements.

- **HMI Principles**
  - Aesthetically Pleasing
  - Availability
  - Clarity
  - Compatibility
  - Configurability
  - Consistency
  - Control
  - Directness
  - Efficiency

- Familiarity
- Flexibility
- Forgiveness
- Operability
- Perceptibility
- Predictability
- Recovery
- Responsiveness
- Safety
- Simplicity
- Transparency
- Trade-offs
- Visibility

- **Automatic Ticket Vending Machine(ATVM)**
  1. A **ticket machine**, also known as a **Ticket Vending Machine** (TVM), is a **vending machine** that produces tickets. For instance, **ticket machines** Dispense train tickets at railway stations.

  2. The typical transaction consists of a user using the display interface to select the type and quantity of tickets and then choosing a payment method of either cash, credit/debit card or smartcard.

  3. The ticket or tickets are printed and dispensed to the user.

A.5 Procedure:

1. Design interface for automated ticket vending machine (ATVM) for metro train.
2. This interface should contain necessary icons, pictures, and buttons.

Example: Sample First Screen of ATVM

Automatic Ticket Vending Machine

मुंबई

Platform Ticket

Season Ticket

English

मराठी

हिंदी

Print Mobile Ticket

PART B

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Date of Experiment:	Date of Submission:
Grade:	

B.1 Tools used to design Interface:

```
<!DOCTYPE html>
<html>

<head>
    <title>ATVM</title>
    <meta name="viewport" content="width=device-width, initial-scale=1">
    <link rel='stylesheet' href='css/notie.min.css'/>
    <link rel='stylesheet' href='css/style.css'/>
    <link rel='stylesheet' href='css/awesomplete.css'/>
    <style>
    * {
    margin: 0;
    padding: 0;
    box-sizing: border-box;
}

body {
    background: url(bg.jpg) no-repeat center center fixed;
    background-size: cover;
}

h1 {
    text-align: center;
    font-size: 4.5em;
    color: white;
    font-family: 'Verdana';
    letter-spacing: 0.1em;
    font-weight: bolder;
    text-shadow: 0.1em 0.1em 0.5em rgba(0,0,3,0.8);
}

#inputSection, #buttonSection {
    margin-top: 5em;

    justify-content: center;
    align-items: center;
}
```

```css
button {
    cursor: pointer;
    padding: 0.7em;
    margin: 1em 0;
    font-size: 2em;
    color: gray;
    background: white;
    outline: none;
    border-radius: 0.3em;
    border-style: dotted;
    border-color:  #123456;
    transform: scale(0.9);
    transition: all 500ms;
}

button:hover {
    color: white;
    background-color: gray;
    transform: scale(1);
}

::-webkit-input-placeholder {
    color: white;
    opacity : 0.5;
}

input {
    text-align: center;

    padding: 0.5em;
    margin: 1.5em;
    width: 30em;
    font-size: 1.75em;
    font-weight: bold;
    line-height: 1.2;
    color: white;
    border: none;
    border-bottom: 5px solid red;
    background:rgba(25, 22, 22, 0.87);
    outline: none;
    box-shadow: 0.1em 0.1em 0.3em #fff;
    text-transform: uppercase;
}

#inputSection .awesomplete>ul> li {
```

```
    padding: 1em;
}

#currentStation {
    color: white;
    font-size: 3em;
    background-color: #2A2A2A;
    padding: 0.2em;
}
#single{
    background-color :#2A2A2A;
    color : white ;
}
#return{
    background-color :#2A2A2A;
    color : white ;
}
#single:hover {
  background-color: #6B6B6B;
  color : white;
}
#return:hover {
  background-color: #6B6B6B;
  color : white;
}
.in{
width : 300px;
font-size: 20px;
 font-weight: bold;
}
#div{
text-align: center;
}

/* Modal Content */
.modal-content {
  background-color: #fefefe;
  margin: auto;
  padding: 20px;
  border: 1px solid #888;
  width: 80%;
}

/* The Close Button */
.close {
```

```
  color: #aaaaaa;
  float: right;
  font-size: 28px;
  font-weight: bold;
}

.close:hover,
.close:focus {
  color: #000;
  text-decoration: none;
  cursor: pointer;
}
#myModal1 {
  display: none; /* Hidden by default */
  position: fixed; /* Stay in place */
  z-index: 1; /* Sit on top */
  padding-top: 100px; /* Location of the box */
  left: 0;
  top: 0;
  width: 100%; /* Full width */
  height: 100%; /* Full height */
  overflow: auto; /* Enable scroll if needed */
  background-color: rgb(0,0,0); /* Fallback color */
  background-color: rgba(0,0,0,0.4); /* Black w/ opacity */
}

.modal {
  display: none; /* Hidden by default */
  position: fixed; /* Stay in place */
  z-index: 1; /* Sit on top */
  padding-top: 100px; /* Location of the box */
  left: 0;
  top: 0;
  width: 100%; /* Full width */
  height: 100%; /* Full height */
  overflow: auto; /* Enable scroll if needed */
  background-color: rgb(0,0,0); /* Fallback color */
  background-color: rgba(0,0,0,0.4); /* Black w/ opacity */
}

        table {
  width: 100%;
}

td, th {
```

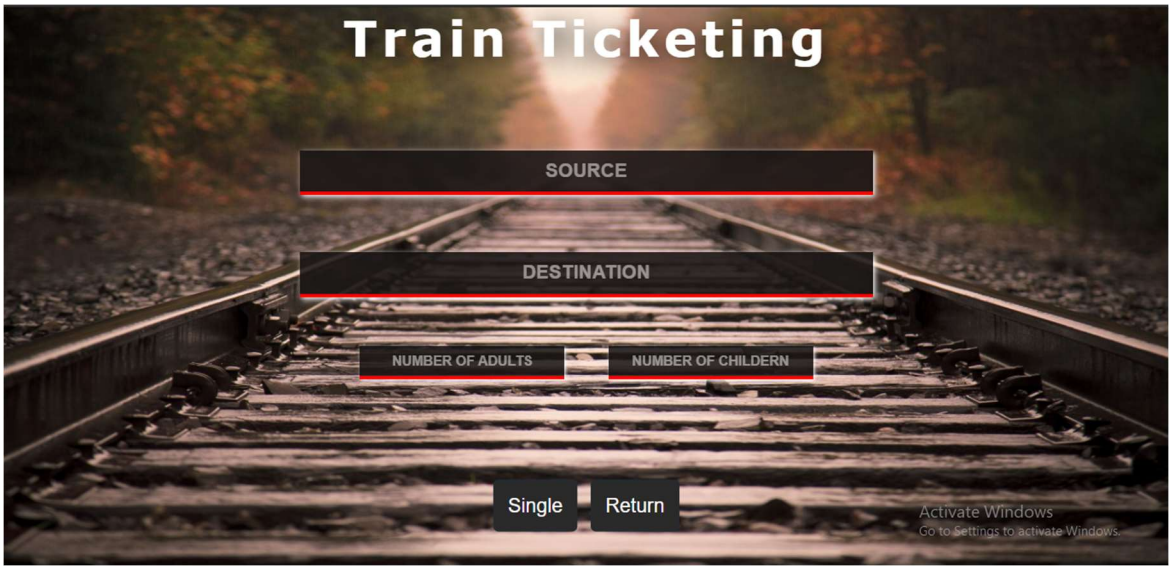
```
  border: 1px solid #dddddd;
  text-align: center;
  padding: 8px;
  margin-top : 10px;
            margin-bottom : 10px;
            border : none;
            background : #CDCDCD;
            padding : 5px;
            height : 40px;
}
tr{
    background : #CDCDCD;
    text-transform: uppercase;
}
#submit{
            align : center;
            margin-top : 10px;
            padding : 5px;
            width : 250px;
            height : 40px;
            background-color : #5AB85A;
            cursor : pointer;
            border : none;
        }

#select_option{
            margin-top : 10px;
            margin-bottom : 10px;
            border : none;
            height : 40px;
            background : #CDCDCD;
            padding : 5px;
            margin-left : 70px;
            width : 250px;
        }

#quantity{
            margin-top : 10px;
            margin-bottom : 10px;
            border : none;
            background : #CDCDCD;
            padding : 5px;
            height : 40px;
            margin-left : 70px;
            width : 250px;
```

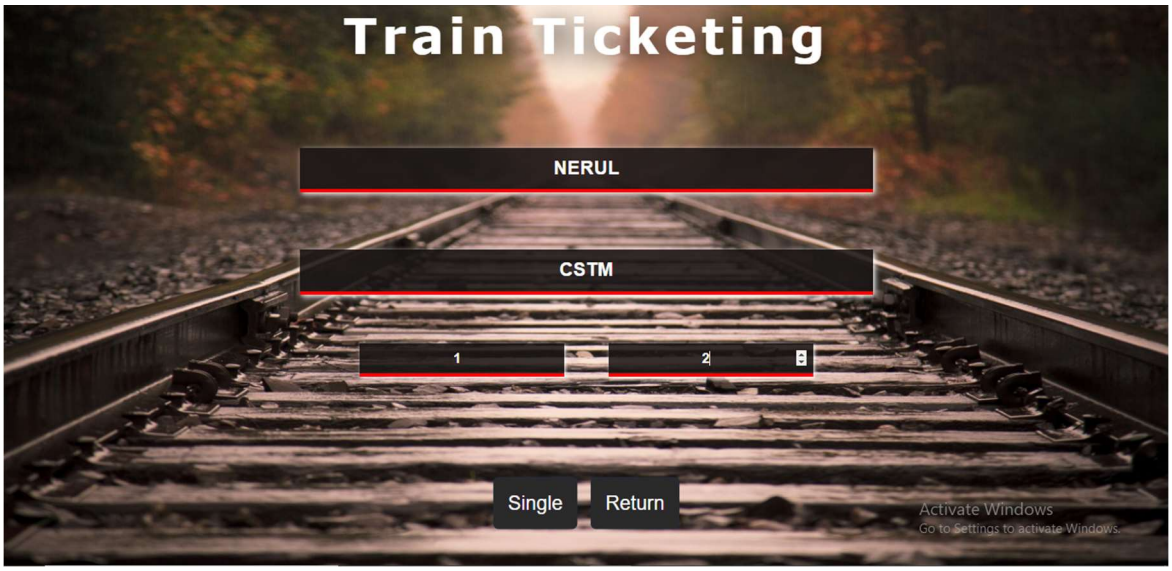
```
        }
.select_option{
            margin-top : 10px;
            margin-bottom : 10px;
            border : none;
            height : 40px;
            background : #CDCDCD;
            padding : 5px;
            margin-left : 70px;
            width : 250px;
        }
        h2{
        text-align : center;
        }
    </style>
</head>

<body>
    <main id="div">
        <header>
            <h1>Train Ticketing</h1>
        </header>
        <form id="inputSection"method="post">
            <input type="text" placeholder="Source" class="awesomplete"
id="source" required >
            <input type="text" placeholder="Destination"
class="awesomplete" id="destination" required >

        </form>
        <input type = "number" placeholder="Number Of Adults" class="in"
id="adult">
        <input type = "number" placeholder="Number Of Childern" class="in"
id="child">
        <section id="buttonSection">
            <button id="single">Single</button>
            <button id="return">Return</button>
        </section>

    </main>
    <div id="myModal" class="modal">

  <!-- Modal content -->
  <div class="modal-content">
    <span class="close">&times;</span>
    <h2>Happy Journey</h2>
```

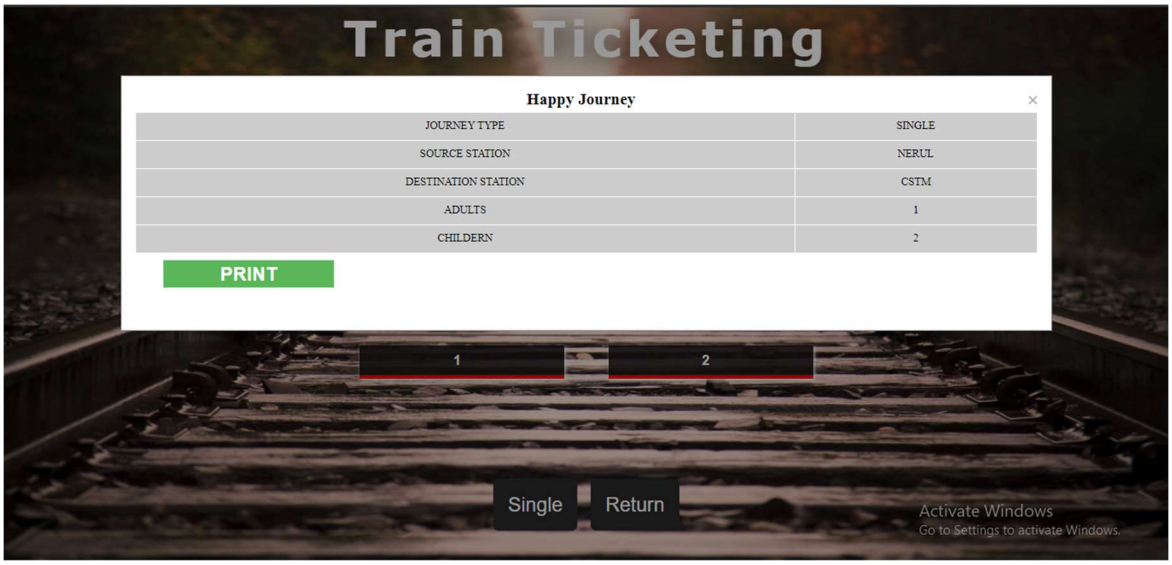
```
    <form>
        <table id="myTable">
        <tr>
        <td><label>Journey Type</label></td>
        <td></td>
        </tr>
        <tr>
        <td><label for="check">Source Station</label></td>
        <td></td>
        </tr>
        <tr>
        <td><label for="check">destination Station</label></td>
        <td></td>
        </tr>
        <tr>
        <td><label for="check">Adults</label></td>
        <td></td>
        </tr>
        <tr>
        <td><label for="check">Childern</label></td>
        <td></td>
        </tr>
        </table>
        <input type="submit" id="submit" value="Print" >
    </form>
  </div>

</div>
    <script>

    //var source = document.getElementById("source").value;
    var modal = document.getElementById("myModal");
    var btn = document.getElementById("single");

    var span = document.getElementsByClassName("close")[0];
    btn.onclick = function() {
        modal.style.display = "block";
        myTable.rows[0].cells[1].innerHTML = "Single";
        myTable.rows[1].cells[1].innerHTML =
document.getElementById("source").value;
        myTable.rows[2].cells[1].innerHTML =
document.getElementById("destination").value;
        myTable.rows[3].cells[1].innerHTML =
document.getElementById("adult").value;
```

```
        myTable.rows[4].cells[1].innerHTML =
document.getElementById("child").value;
    }
        span.onclick = function() {
        modal.style.display = "none";
    }
    window.onclick = function(event) {
    if (event.target == modal) {
        modal.style.display = "none";
    }
    }

    var modal = document.getElementById("myModal");
    var btn = document.getElementById("return");
    var span = document.getElementsByClassName("close")[0];
    btn.onclick = function() {
        modal.style.display = "block";
        myTable.rows[0].cells[1].innerHTML = "return";
        myTable.rows[1].cells[1].innerHTML =
document.getElementById("source").value;
        myTable.rows[2].cells[1].innerHTML =
document.getElementById("destination").value;
        myTable.rows[3].cells[1].innerHTML =
document.getElementById("adult").value;
        myTable.rows[4].cells[1].innerHTML =
document.getElementById("child").value;

    }
        span.onclick = function() {
        modal.style.display = "none";
    }
    window.onclick = function(event) {
    if (event.target == modal) {
        modal.style.display = "none";
    }
    }

    </script>

    <script src='js/notie.min.js'></script>
    <script src='js/awesomplete.min.js'></script>
    <script src='js/app.js'></script>
</body>
</html>
```

B.2 Interfaces of ticket vending machine for metro train:







B.3 HMI principles used to design interface.

- Aesthetically Pleasing
- Availability
- Clarity
- Compatibility
- Consistency
- Control
- Directness
- Efficiency
- Familiarity
- Flexibility
- Operability
- Predictability
- Responsiveness
- Safety
- Simplicity
- Transparency
- Visibility

B.4 Target audience of this Interface?

People using train as a mode of transport.

B.5 Conclusion:

HMI along with interaction styles such as HTML can be used for creating the interface.