

<b>CHAPTER NO</b>	<b>TITLE</b>	<b>PAGE NO</b>
	<b>ACKNOWLEDGEMENT</b>	III
	<b>ABSTRACT</b>	V
<b>1</b>	<b>INTRODUCTION</b>	
	1.1 Introduction	1
	1.2 Problem Statement	1
	1.3 Objectives	2
	1.4 Scope	2
	1.5 Organization of the Project	3
<b>2</b>	<b>LITERATURE SURVEY</b>	
	2.1 Introduction	4
	2.2 Automated Evaluation of Student Answers Using NLP Technique	4
	2.3 Intelligent Assessment System Using Machine Learning for Descriptive Answers	5
	2.4 Automatic Grading of Short Answers Using BERT	5
	2.5 OCR Based Automated Examination System	6
	2.6 Assessment using AI-A Comparative Study Rule Based and ML Models	6
<b>3</b>	<b>SYSTEM ANALYSIS</b>	
	3.1 Existing Systems	8
	3.1.1 Traditional Grading and Its Limitations	8
	3.1.2 Automated Grading for Objective Type Questions	8
	3.1.3 OCR Based Answer Evaluation	9
	3.1.4 NLP and AI in Descriptive Answer Evaluation	9
	3.2 Disadvantages of Existing Systems	10
	3.3 Proposed System	10

	3.3.1 Handwritten Text Extraction Using Ollama OCR	10
	3.3.2 Text Preprocessing and Cleaning	11
	3.3.3 Semantic Evaluation Using NLP Models	11
	3.3.4 Score Calculation and Feedback Generation	11
	3.3.5 Teacher Dashboard, Student Information, And Result Accessibility	12
	3.4 System Architecture	12
<b>4</b>	<b>SYSTEM REQUIREMENTS</b>	
	4.1 Overall Description	13
	4.2 Specific Requirements	13
	4.2.1 Hardware Requirements	13
	4.2.2 Software Requirements	13
	4.3 Functional Requirements	14
	4.4 Non Functional Requirements	14
<b>5</b>	<b>SYSTEM IMPLEMENTATION</b>	
	5.1 Architectural Diagram	16
	5.2 UML Diagram	16
	5.2.1 Use Case Diagram	16
	5.2.2 Class Diagram	18
	5.2.3 Sequence Diagram	20
	5.2.4 Activity Diagram	22
	5.2.5 DFD Diagram	23
	5.2.6 ER Diagram	24
<b>6</b>	<b>MODULES IMPLEMENTATION</b>	
	6.1 Modules List	25
	6.2 Modules Description	25
	6.2.1 Tesseract OCR Module	25
	6.2.2 Ollama 3.1 Text Refinement Module	25
	6.2.3 BERT Semantic Matching Module	26
	6.2.4 Grading and Feedback Module	26

	6.2.5 Teacher Dashboard Module	26
	6.2.6 Student Dashboard Module	27
<b>7</b>	<b>EXPERIMENTAL RESULTS</b>	
	7.1 Tesseract OCR Module Performance	28
	7.2 Ollama Performance	29
	7.3 BERT Semantic Model Performance	29
	7.4 Overall System Performance	30
<b>8</b>	<b>CONCLUSION</b>	31
<b>9</b>	<b>APPENDICES</b>	
	9.1 Sample Source Code	32
	9.2 Demo Screenshots	46
<b>10</b>	<b>FUTURE ENHANCEMENT</b>	54
	<b>REFERENCES</b>	56

<b>FIGURE NO</b>	<b>LIST OF FIGURES</b>	<b>PAGE NO</b>
<b>3.1</b>	GradeX Architecture	<b>12</b>
<b>5.1</b>	GradeX Flow Diagram	<b>16</b>
<b>5.2</b>	Use Case Diagram	<b>17</b>
<b>5.3</b>	Class Diagram	<b>19</b>
<b>5.4</b>	Sequence Diagram	<b>21</b>
<b>5.5</b>	Activity Diagram	<b>22</b>
<b>5.6</b>	DFD Diagram	<b>23</b>
<b>5.7</b>	ER Diagram	<b>24</b>
<b>9.1</b>	GradeX Website	<b>46</b>
<b>9.2</b>	GradeX Information	<b>46</b>
<b>9.3</b>	GradeX Student Sign in	<b>47</b>
<b>9.4</b>	GradeX Student Sign Up	<b>47</b>
<b>9.5</b>	GradeX Student Dashboard	<b>48</b>
<b>9.6</b>	GradeX Student Exam Fill	<b>48</b>
<b>9.7</b>	GradeX Student Awaiting Exam Status	<b>49</b>

<b>9.8</b>	GradeX Teacher Login	<b>49</b>
<b>9.9</b>	GradeX Teacher Dashboard	<b>50</b>
<b>9.10</b>	GradeX Teacher Exam Creation	<b>50</b>
<b>9.11</b>	GradeX Teacher Dashboard Created Exam	<b>51</b>
<b>9.12</b>	GradeX Teacher Dashboard Exam Submission List	<b>51</b>
<b>9.13</b>	GradeX Teacher Dashboard Answer Sheet Upload	<b>52</b>
<b>9.14</b>	GradeX Teacher Dashboard-Answer Sheet Evaluating	<b>52</b>
<b>9.15</b>	GradeX Teacher Dashboard Results-1	<b>53</b>
<b>9.16</b>	GradeX Teacher Dashboard Results-2	<b>53</b>