Baulkham Hills High School

Preliminary - Software Design and Development

Assessment Task: 2	**Assessment Name:** Building Software Solutions – ATM System
Total Mark: 80 **Weighting:** 40%	**Outcomes Assessed:** P1.2, P4.1, P4.2, P4.3, P5.2, P6.3
Due Date & Submission:	Friday, 25th June 2021 @ 8:38am - Week 10, Term 2 Submitted by **both students** on Google Classroom as a .zip folder. All files are to be included in the .zip folder. The .zip is to be named as the following: - StudentName1_StudentName2_Prelim_Task2_2021.zip

Task Description:

Automatic Teller Machine (ATM) allows banking customers to complete basic banking transactions. Anyone with a credit card or debit card can access most ATMs. They are convenient, allowing consumers to perform quick self-service transactions such as deposits, cash withdrawals, bill payments, and transfers between accounts. The use of physical cash has dropped over the last 10 years due to the increased usage of credit/debit cards and the skyrocketing rise of online transactions. Customers still need to be able to access cash anywhere and be able to complete banking transactions without the internet or entering a physical bank. Reliability and security are essential for ATMs as it is dealing with customers details, cash money and transaction data.

In pairs, students are to design a replica of a working Automatic Teller Machine (ATM) system written in Python programming language.

ATM System Features and Functions:

- Login / Welcome Screen for user details to be entered and includes data security
- Check Balance - Current user balance is displayed
- Deposit - User can 'deposit' money into the system
- Withdraw - User can 'withdraw' money from the system
- Receipt - A replica text file which displays information after a banking function has been completed
- User Credentials – File which stores login & PIN / user details / balance

Project Documentation:

All documentation is to be saved as: StudentName1_StudentName2_#DocumentName#.pdf

- E.g. StudentName1_StudentName2_ContextDiagram.pdf

- Software Development Approach
  - Explanation of the Software Development Approach used to create the ATM system
- Gantt Chart
  - Delegation of tasks for each person is to be explicitly shown
- Context Diagram
- Level 1 Data Flow Diagram
- Level 2 Data Flow Diagram of the ATM's deposit process
- Structured Walkthrough
  - Step-by-step walkthrough / instructions to complete a withdrawal
  - Test data is to be included for error detection
- Logbook
  - A logbook template will be provided by Mr Dunne

ATM System		Marks

Code Design
- Code structure demonstrates an understanding of programming principles
- Good use of local / global variables
- Good use of functions
- Good use of packages / modules / libraries
  - Modules / Libraries enhance the overall ATM System
- Demonstration of a range of data types
- Inputs & outputs are correct
- Use of the following:
  - Decisions
  - Pre-Test & Post-Test Loops
  - Data Structures
	High quality code that meets the code design requirements. Well written, efficient, clean code with no bugs or errors present.	8 - 10

	Good code that meets most of the code design requirements. Clean code with minimal bugs or errors.	5 - 7
	Basic code that meets some of the code design requirements. Code works but includes bugs or errors.	1 - 4

ATM Functions & Usability
- Login / Welcome Screen
  - Users can enter their “user login” & PIN
  - Function reads “User Credentials” file
  - Security method/s included
- Menu / Exit
  - Allows users to choose which function they wish to use.
  - Allowing users to do multiple banking transactions, whilst logged in.
  - Exit function is included
- Check Balance
  - Current balance is displayed in the ATM System
- Deposit
  - Users can “deposit” money into their account
  - Updates the User Credential and receipt files
- Withdrawal
  - Users can “withdraw” money from their account
  - Checks that withdrawn amount does not exceed current account balance
  - Updates the User Credential and receipt files
- User Experience
  - Includes clear, understandable, and professional feedback to users
  - Realistic ATM functions are used
	Excellent ATM System which performs all functions correctly and covers all dot points successfully	16 - 22

	Good ATM System which performs most functions correctly and covers most dot points	8 - 15
	Basic ATM System which performs some functions correctly and some dot points	1 - 7
Receipt - A replica receipt can access a text file which can be written to - Accurate data relating to the current banking transaction is included - The design of the receipt is to be professional and understandable	High quality receipt file which includes all dot points is produced each time correctly	3 - 5
	Suitable receipt file which includes some dot points is produced	1 - 2
User Credentials - Text file which the ATM System can access, be opened, read, written/appended to - Includes 10 users with their: user login / PIN / balance / other data which may be relevant to the user - Suitable data types are used - The following user is to be included for testing purposes - *Dunne / 1111 / $1000.00*	High quality user credential file given which includes all dot points	4 - 5
	Suitable receipt file given which includes some dot points	1 - 3
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Readability & Commenting	Marks
- Code is well documented with useful and meaningful comments / variable names - No errors, code is clean, understandable, and well-organized - Includes name of the person who wrote the function / code	3 - 4
- One or two places that could benefit from comments are missing them or the code is overly - commented - Minor issues with consistent indentation, use of whitespace, variable naming, or general - organisation	1 - 2
	/ 4

Project Documentation		Marks
Software Development Approach - Development approach(es) chosen and justification of the choice - Explain how your choice relates to the type of program you are developing, the timeframe / scale of the project and your personal development preferences	Suitable approach or combination of approaches chosen with a detailed justification of reasons behind the choice	3
	Suitable development approach chosen with some justification for reasons	1 - 2
Gantt Chart - Key components of the project are scheduled in a logical sequence - Project milestones are realistic and achievable - Delegation of tasks is shown	High quality Gantt chart which reflects the timing, planning and organisation of the project. Addresses all dot points.	3 - 4
	Suitable Gantt chart which reflects some of the timing, planning and organisation of the project. Addresses some dot points.	1 - 2
Context Diagram - Design a Context Diagram which clearly represents the ATM system - Utilisation of the course specific symbols, labels, and design	High quality, accurate Context Diagram which represents the ATM system and addresses all dot points	3
	Suitably designed Context Diagram which represents the ATM system	1 - 2
Data Flow Diagrams - Designs Data Flow Diagrams which clearly represents the ATM system - Utilisation of the course specific symbols, labels, and design - Key data movements demonstrate the relationship between the processes	High quality, well designed Data Flow Diagrams that represents the ATM system and addresses all criteria dot points	4 - 6
	Suitably designed Data Flow Diagrams which represents the ATM system and addresses some criteria dot points	1 - 3
Structured Walkthrough - Creates a step-by-step guide which takes users through 1 function with the ATM system - Key steps are identified clearly - Test data is given to help identify errors in code or data.	Outstanding structured walkthrough which documents all steps and can be followed correctly by the user. Includes excellent examples of test data to be used	3 - 4
	Suitable structured walkthrough which documents some steps and can be followed by the user. Includes examples of test data to be used	1 - 2
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Logbook	Marks
- Demonstrates an outstanding ability to document a logbook - Provides insight into all the work completed, including challenges, achievements, and references - Utilises the logbook template correctly - Evidence of team members individual logbook entries	3 - 4
- Demonstrates a sound ability to document a logbook - Provides insight, using their journal, into the development while developing the program - Evidence of team members individual logbook entries	1 - 2
	/ 4

Group Work		Marks
Teamwork	- The team has worked effectively together on the project - Delegation of project's tasks is equal - There is evidence of excellent interpersonal skills	3 - 5
	- The team has worked together on the project - Minimal evidence of interpersonal skills	1 - 2
Individual's Work	- Evidence of contribution to the project - Effectiveness of their contribution to the project	1 - 5
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