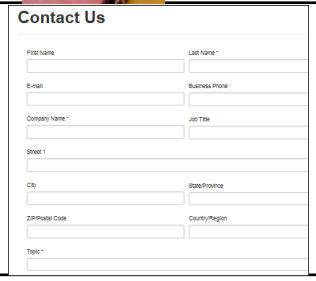
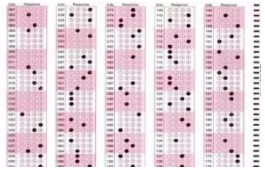
Methods of Data Capture

Method	Image	Description	Examples	Advantages	Disadvantages
Magnetic stip card		Magnetic strips can be encoded by tiny iron based particles being magnetised	Credit and debit cards	small and portable	Have to be inserted If weak can be demagnetised
smart cards		thin microprocessor embedded in the card stores data	healthcare information, school IDs, prepaid cards, authorising access	Can be tapped to be scanned. Convenient	can be lost
Radio frequency identification		A passive technology for tracking an item. Uses tags and readers, the readers send radio waves and receive signals from a tag in return.	library books	small and discrete	materials can impact reading. Implementation less reliable than barcodes.
capture forms		Paper based or computer based, simple entry criteria to follow	signing up for a service	If done digitally input validation can be done. Universal	Hard to process all the data especially if in long written form. User input is slow.

optical character recognition		Takes images of shapes on a piece of paper and warps those shapes until OCR recognises that shape as a character on a database. Therefore it can take scanned documents and convert them to editable text files.	Reading old paper documents, reading number plates	Can be automated and optimised, still faster than humans	Since pattern matching is a complicated process, OCR can make mistakes
Magnetic Ink Character Recognition		Scans only for ink containing iron oxide	checks	expensive to make and scan for	More reliable and accurate than optical mark recognition methods
Barcode		The thickness and position of lines uniquely identifies a barcode. Barcode readers can be used to look up that barcode on a database.	Products in shops, barcode patent ID in hospitals	Very quick and efficient, takes up minimal space	Cannot store huge amounts of information
Survey		A simplified form that makes use of multiple choice options	Polls, marketing research	doesn’t waste the user's time. Answers are usually easy to process	limited choice options
scanner		Used for image digitisation, makes a bitmap from a flat piece of scanned media.	Used in OCR, film scanner and in printers	Accurate	Slow

Optical mark recognition		Used for mass processing multiple choice question on paper	some exams and exams and lottery systems	The OMR knows the format of the sheet so only the important areas are checked	If an area isn't fully covered or incorrectly marked it may be missed.
Card readers		Either magnetic or smart, read the data on the embedded chip in the card	Shops or hotel doors	Gives an accurate input allowing a transaction to take place	Must be secure or risk breaches of security and data
Motion detectors		Emits waves of ultrasound or other harmless invisible waves and alerts users when they are disrupted.	Automatic lighting, home security, energy efficiency	energy conservation and security	Can be triggered unintentionally.